DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
333 Market Street, Room 923
CESPD-ET San Francisco, California 94105-2195

CESPD Regulation
No. 1110-1-8 30 June 1997

QUALITY MANAGEMENT PLAN

1. Purpose: This regulation provides the general policy and procedures for the execution of quality management activities in the South Pacific Division (CESPD), and in the districts and other field operating activities within the South Pacific Division.

2. Applicability: This plan applies to all technical activities of CESPD and its districts having responsibilities for Civil Works, Military, HTRW, SFO, WFO and Real Estate services and products, from planning of these products through their construction and operation. The plan shall be reviewed annually and updated as appropriate.

3. References:

a. CECW-A EC 1165-2-203, Technical Policy Compliance Review dated 15 October 1996.

b See subplans in appendices for references applicable to the quality management practices of the individual functional elements.

4. Definitions:

a. Acronyms: A list of acronyms used in this plan is given in Appendix B.

b. Customer: The owner, client, local sponsor, user or beneficiary of a service or product.

This regulation supercedes CESPD R 1110-1-8 dated 31 May 1996.

c. Contractor: Other than in-house forces, such as other Corps offices, other government agencies or private contractors.

d. Design Checks and Other Internal Review Processes: Detailed review and checking which must be carried out as routine management practices in each of the respective functional elements. Such review includes checking basic assumptions and calculations. These checks are performed by staff responsible for the work, such as supervisors and work leaders, and shall be performed prior to conduct of independent technical reviews.

e. Decision Documents: A decision document is any report prepared for the purpose of obtaining project authorization or modification, commitment of Federal funds for project implementation, and approval to spend/receive funds as a result of entering into agreements with other agencies or organizations including those to obtain Congressional authorization.

f. Functional Chiefs: For the purposes of this plan, these are the chiefs of the functional elements within DETS at CESPD (Real Estate, Planning, Engineering and Construction-Operations), as well as Programs Management, and their counterparts at the Districts.

g. Implementation Documents: Any document prepared for purposes of executing a project in accordance with its authorization.

h. Independent Technical Review: A review by a qualified person or team, not affiliated with the development of a project/product or the supervision of such, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles and professional procedures.

i. Independent Technical Review Team (ITRT): An interdisciplinary group formed to perform the independent technical review. Same as "Review Team" in this Quality Management Plan.

j. Project Manager: The project manager is that person who is responsible for overall coordination and development of a product.

k. Quality: Conformance to properly developed and agreed upon requirements.

l. Quality Assurance (QA): Quality assurance is the oversight of the quality control processes to insure their effectiveness in the production of quality products.

m. Quality Control (QC): The process employed to ensure the performance of a task that meets the agreed upon requirements of the customer and appropriate laws, regulations, policies

and technical criteria on schedule and within budget.

n. Quality Control Plan (QCP): A plan which establishes the documents and products to be reviewed, the review team and its responsibilities, the schedule and costs for reviews, the agreed upon requirements of the customer and appropriate laws, regulations, policies and technical criteria for development of the study/product.

o. Quality Management (QM): Practices and business procedures to insure the quality of a technical product, encompassing all aspects of product development, including planning, engineering, real estate and construction-operations.

p. Quality Management Plan (QMP): A plan stating the quality managment practices and business procedures to insure the quality of a technical product, encompassing all aspects of product development, including planning, engineering, real estate and construction-operations.

q. Review Team: An interdisciplinary group formed to perform the independent technical review. Same as "Independent Technical Review Team" in this QMP.

r. Review Team Leader: The individual responsible for coordinating all activities of the review team.

s. Seamless Review: In-progress reviews made by members of the review team during product preparation.

t. Support for Others (SFO): Projects for customers outside of the Department of Defense.

u. Product Development Team: An interdisciplinary group formed to develop a product. It is this team that produces a decision or implementation document.

v. Technical Manager (TM): The technical manager is that person responsible for overall coordination and development of the technical components of a product.

w. Technical Products: All deliverables are referred to as technical products, including real estate, decision and implementation documents, plans and specifications, that include the integration of technical products from multiple functional elements. They include completed deliverables that are ready for transmission to other members of the product development team, outside of the element that performed the work.

x. Technical Review: Technical Review is the focus on compliance with established policy, principles and procedures using clearly justified and valid assumptions. It includes the

verification of assumptions, methods, procedures, and material used in analyses based on the level of complexity of the analysis. It verifies the alternatives evaluated, appropriateness of data used and level of data obtained, functionality of the product and verifies the reasonableness of the results including whether the product meets the customers needs consistent with law and existing policy and engineering and scientific principles.

y. Total Quality Management (TQM): The application of quantitative methods and people to meet the needs of end users and to assess and improve all significant processes in the organization.

z. Value Engineering (VE): A function oriented, systematic team approach to balance performance and cost. Typical value engineering studies are performed under the direction of an experienced facilitator using a multi-discipline team of project and stake holders who break down the project into functional performance elements. Cost and benefits are assigned to each element and evaluated. Creative options are then sought when there is a mismatch between value and cost.

aa. Work for Others (WFO): Non-traditional projects within the Department of Defense.

5. Division Policy on Quality Management:

It is the policy of CESPD and its districts to develop and implement quality management practices, including quality assurance (QA) and quality control (QC), that ensure that technical products meet the agreed upon requirements of the customer and appropriate laws, policies and technical criteria, on schedule and within budget. Adherence to quality principles and established quality assurance and quality control practices is integral with the roles and responsibilities of all CESPD and district functions. QA and QC practices outlined herein shall also be consistent with other quality management practices prescribed by USACE, including Total Quality Management (TQM), Value Engineering (VE) and ISO 9000. General guidance on QA and QC responsibilities and practices is given below. Exceptions to the general guidance and guidance specific to the unique responsibilities and programs within the Planning, Engineering, Real Estate and Construction-Operations functions are given in Appendices C through F, respectively.

6. District Quality Control Responsibilities:

a. Objectives: Districts shall be responsible for developing and following quality management practices and business procedures to insure quality products. This includes all interim products that are required for the development of an end product, from the inception of planning through construction-operation. These objectives shall be met by development and execution of Quality Management and Quality Control Plans.

b. Execution: Quality control responsibilities shall be executed consistent with the

guidance set forth herein and with each district's Quality Management Plan. Subplans (see appendices) are provided herein describing quality control responsibilities for the products that are managed by the Planning, Engineering, Real Estate and Construction-Operations functions.

c. Quality Management Plan (QMP): The Planning, Engineering, Real Estate and Construction-Operations Divisions of each district shall establish, and update annually, a quality management plan (QMP), in combination or for each of their respective divisions, that complies with the policy and principles presented in this plan and in applicable USACE regulations. These QMP's and revisions to such shall be reviewed and approved by CESPD.

d. Quality Control Plan (QCP):

(1) Requirements: A quality control plan (QCP) shall be prepared for every product or service, whether obtained using in-house or contractor forces, and updated as warranted. Contract forces may include other Corps offices, other government agencies and private industry sources. The QCP should include, at a minimum, the items listed in paragraph 6.a of reference 3.a, above, as well as a description of the resources required to accomplish the activities outlined in the QCP. Routine or minor products may utilize generic QCP's consistent with overall QA/QC roles. Programmatic QCP's may be developed and utilized for routine, major programs. Generic and programmatic QCP's should include a general description of the items listed in paragraph 6.a of reference 3.a, above. Guidance specific to functional elements may be found in the individual subplans to this QMP.

(2) Responsibilities: A single QCP should be developed which encompasses the Planning, Engineering, Real Estate and Construction-Operations aspects of a particular product or service. The chief of the functional element having overall responsibility for a product shall be responsible for development of the QCP for that product with input from the other functional elements involved in development of the product. The QCP's should include a requirement for consistency review between the decision or implementation document and any supporting NEPA document(s).

(3) Review and Approval: For ongoing product development efforts for which QCP's have not yet been developed, QCP's should be developed immediately. QCP's for new products shall be developed and submitted to CESPD for review and approval within 30 days of initiation of product development and within 30 days of the implementation of major revisions. Substantive efforts on product development shall not be undertaken without an approved QCP. Exceptions to the minimum requirements for QCP's setforth herein and reasons for the exceptions must be submitted for review and approval. See Appendix A, Table 1 for a general listing of items requiring QCP's.

e. Quality Control Activities:

(1) Responsibilities: The chief of each functional element within the district shall have overall responsibility for the technical quality of products that are managed within the functional element. Other function chiefs, the product development team, the technical manager, the review team and the review team leader, also, have significant roles and responsibilities in achieving quality products. These roles and responsibilities shall be described in the district's Quality Management Plan and shall include the responsibilities that are outlined in each functional element's subplan in the enclosed appendices.

(2) Independent Technical Review: Key to the successful execution of the quality control process for the products developed by the Planning, Engineering and Real Estate Divisions and their contractors as well as certain products of Construction-Operations Division is the independent technical review of a product. This review shall be accomplished by an independent technical review team (ITRT) composed of individuals having expertise in disciplines involved in the type of product being developed and reviewed, who have a minimum of five years experience in the discipline and who were not involved in product development or supervision thereof. Independent technical review shall not replace the need for and conduct of design checks or supervisory review of products. Sufficient time and resources should be allocated to this process commensurate with the risk and complexity of the technical product. Review comments should be constructive in nature, relevant to the product and should contain the following elements: (a) A clear statement of the concern; (b) The basis of the concern; (c) The significance of the concern; and, (d) The specific actions needed to resolve the concern. Specific guidance on conduct of this quality control element is given in the individual subplans in the appendices to this document.

(3) Seamless Review: Subproducts shall be technically overviewed before they are integrated into the overall product. To insure this, study/project team members shall consult with their Independent Technical Review Team (ITRT) counterparts at appropriate points throughout the development effort to discuss major assumptions and functional decisions, analytical approaches and significant calculations to preclude significant comments from occurring during the final independent technical review which could adversely impact project schedules and costs. These counterpart discussions should normally be initiated by the subproduct developer. Each discipline would engage in their own counterpart discussions when appropriate. The conclusions/agreements reached should be documented, with copies retained by each participant and distributed to the ITRT leader and the study/project team leader. The documentation would become part of the product technical review file.

(4) Dispute Resolution: The ITRT leader shall review the products and ITRT comments and product development team responses to identify any outstanding disagreements between members of the product development team and the ITRT. Any disagreements shall be brought to the attention of the appropriate functional chief to facilitate resolution of technical

disagreements between product development and ITRT counterparts. If this interaction does not resolve the issue, the final decision will be made by the functional chief. The functional chief may consult with CESPD staff, who may serve as an unbiased sounding board; or major technical issues may be forwarded to CESPD for resolution.

(5) Technical and Policy Issue Resolution: Issues involving technical and policy interpretation shall be brought to the attention of the chief of the responsible functional element for resolution. In some cases, the chief of the responsible functional element may request that CESPD hold an issue resolution conference to resolve major policy or technical issues. CESPD may also arrange for HQUSACE participation in the issue resolution conference.

(6) Products Developed by Contractors: For products developed either wholly or partially by a contractor, development and execution of a QCP for the contractor product shall be the responsibility of the contractor. The QCP for the contractor product shall be reviewed and approved by the district. An overall quality control plan shall be developed by the district that outlines quality control activities by the district for that portion of the product developed by in-house forces and quality assurance activities by the District for overseeing the contractor's quality control activities. CESPD shall review and approve the overall QCP for the total product.

(7) Final Documentation and QC Certification: Proper documentation is another key component of an effective quality control process. Significant comments, issues and decisions must be recorded and the entire process must leave a clear audit trail. The documentation of the independent technical review and other quality control processes prescribed in a product's QCP shall be included with the submission of a specific product to CESPD. For those products which the function chief transmits to CESPD, the function chief shall certify that the quality control process for that product has been completed and that all technical issues that have been identified have been resolved. For those products which the District Commander transmits to CESPD or to headquarters, both the chief of the functional element responsible for the product and the District Commander shall sign the certification. A model QC certification is provided in Appendix G. Copies of the certification and accompanying documentation shall be included in the District project files.

(8) Updating of Quality Control Plans: Quality control plans, product specific, generic and programmatic, shall be reviewed annually and updated as warranted. QCP's shall be updated whenever significant changes require modification of the QCP. If these changes are not approved separately through Schedule and Cost Change Requests (SACCRs) or changes to the Project Study Plan (PSP) or Project Management Plan (PMP), the revised QCP shall be submitted to CESPD for review and approval within 30 days of implementation of the revisions.

7. CESPD Quality Assurance Responsibilities:

a. Objectives: The South Pacific Division shall be responsible for reviewing and approving district quality management plans and product specific, generic and programmatic quality control plans and revisions to such; for conduct of quality assurance activities to assure District compliance with these plans; and, for recommending changes in the district quality management and quality control processes, as needed, to assure that:

(1) Mechanisms and procedures are in-place to enable the districts and their contractors to (a) produce quality products that comply with established criteria, methods and procedures, and (b) apply competent technical resources to decisions and reviews.

(2) Districts and their contractors plan, design and construct safe, functional, cost effective and environmentally sustainable products that accomplish authorized purposes and meet or exceed customer's expectations.

(3) The Districts and their contractors develop quality control plans that (a) provide a level of detail appropriate to the type, complexity and acceptable level of risk of the product; (b) are consistent with guidance provided; and (c) provide for documentation of quality control actions, including reviews, comments and resolution of comments.

b. Execution: Quality assurance responsibilities shall be executed consistent with CESPD functional statements. Functional elements within CESPD have prepared subplans to execute their quality assurance responsibilities based on their functional statements and reflecting products/programs unique to their areas of responsibilities. See appendices. General guidance on CESPD's quality assurance responsibilities follows.

c. Quality Assurance Activities: The chief of each functional element within CESPD shall have overall responsibility for quality assurance activities of products within their respective functional elements and missions, and shall be supported in their QA activities by the chiefs and staffs of the other functional elements of CESPD as noted below.

(1) Review and Approval of District QMP's and QCP's: CESPD shall be responsible for the review and approval of all District quality management plans and of all product specific, generic and programmatic quality control plans and significant revisions to such.

(2) Quality Assurance Teams:

(a) General: Similar to the team concept of performing quality control activities within the districts, CESPD also shall follow a team concept in conduct of its quality assurance of technical products throughout their lifetime.

(b) Formation of QA Teams: QA teams shall be assigned representatives

that have expertise in plan formulation, economics, environmental resources, hydrology and hydraulics or coastal engineering, civil design, geotechnical, real estate, construction, operation, programs and project management and other disciplines, as required. Since careful coordination between these disciplines is required, the team must include staff with broad expertise. A goal will be the establishment of an informed, objective team with full accountability to maintain objectivity. The formation of the QA team should consider regional interests, resources, special expertise requirements and unusual complexity.

(c) QA Team Leader: A QA team leader shall be named by the chief of the functional element having QA oversight for a particular product who shall be supported as needed by other CESPD team members from disciplines represented in the development or other aspects of the product.

(d) Team Responsibilities and Authority: The QA team shall be responsible for conduct of the full range of quality assurance responsibilities as outlined in this QMP. Similar to the concept of seamless review conducted by Districts, the QA team shall consult with their District counterparts on a periodic basis to ensure that the quality control activities outlined in a product's QCP are being appropriately conducted and to assist in timely resolution of minor technical and/or policy issues that could cause delays in product development or other product phase. At study/project meetings with the District and local sponsors, QA team members represent not only their respective functional elements but also the coordinated views of all functional elements within CESPD. The team shall fully and frequently discuss their QA assessments and develop a consolidated CESPD position spanning the quality assurance programs of all functional elements. The Director, DETS and the Chiefs of the DETS functional elements shall be briefed on a periodic basis on the conclusions and recommendations of the QA team.

(e) Participation of an individual from CESPD on a product's technical review team would compromise that individual's ability to perform quality assurance on that product and is prohibited. CESPD team members not involved in quality assurance activity on a specific technical product may, at the request of a district and with the approval of the Director, DETS, participate in the technical review of that product. In this situation, the requesting District would be required to fund this review activity.

(3) Counterpart Consultations: An essential quality assurance activity shall be informal, counterpart consultations between district and CESPD personnel. These consultations shall be informational "two-way streets", providing CESPD personnel an opportunity to assess whether district and/or contractor activities for product development are in compliance with the established quality control plan and district personnel with an informal avenue to CESPD personnel on resolution of unique technical problems and/or issues on product development.

(4) In-Progress Conferences: In-Progress Conferences shall serve as formal

quality assurance checkpoints to ensure that quality control has taken place and that appropriate progress, particularly in prolonged product development efforts, is being made in the product development. CESPD participation in these conferences shall be a significant element of CESPD's quality assurance program. Requirements for such conferences are included in the subplans for the various functional elements.

(5) Audit of the QC Process:

(a) General: CESPD shall selectively audit or review the QC processes which may include spot checking specific technical products to assure the quality of the review and the resulting quality of the technical products. These reviews shall be for the purpose of identifying system problems, trends and possible improvements to the quality management and quality control process, and assure compliance with current CESPD and HQUSACE policy. The selection of products for detailed audits shall be based on a number of criteria, including: the expressed needs and concerns of the district, new processes or techniques, or product types that have poor performance histories. Determination of the need for such audits may be made at any time during product development.

(b) Audit Process: The audit process may take many forms as discussed in the subplans to this QMP. Upon the determination that a formal audit is required of an entire function's quality management process, it shall consist of the following: (1) Letter notification to District Commander identifying need for QC audit, studies/projects to be audited, specific data required for audit (see general data requirements, below) and audit process and schedule specific to the identified studies/projects; (2) Review by QA team of study/project data provided by District (See Appendix A, Table 3 for an audit "checklist"); (3) Counterpart discussions (on an as needed basis); (4) Full audit of project documents (if determined necessary by QA team); and (5) Outbrief/report to the Chief of the functional element responsible for the technical product being audited and the District Commander on the Quality Management of the study/project.

(c) General Data Requirements for Formal Audit: The data required for a specific study/project generally shall include the following: Brief description of the overall study/project and each activity related thereunto; QCP for study/project; Minutes of the Technical Review Strategy Session; Comments made by the Independent Technical Review Team during both seamless and product specific reviews; Memoranda documenting resolution of ITRT comments; and list of products generated.

(6) Technical and Policy Issue Resolution Conferences (IRC): Issue Resolution Conferences (IRC) may be required during product development. These may be called at the request of: A district to address major issues raised as a result of quality control activities; CESPD, to address major issues raised as a result of quality assurance activities; and, mandatory issue resolution conferences under the respective functional element's umbrella of responsibility.

All issue resolution conferences shall be chaired by CESPD.

(7) Monitoring/Fostering Technical Competency: Quality assurance includes an evaluation of the district's development and maintenance of the technical competency for production and review of a product.

(a) If production and/or review team members with the appropriate technical expertise in a specialty area are not available from within the district, the district must seek such expertise from outside sources, such as other districts, divisions, COE research laboratories, customer's organizations or private consultants. At the request of the districts, CESPD may provide assistance on seeking such expertise. The approval of a quality control plan for a product shall be the acknowledgement of the credentials of the production and technical review team. To assist in this process, the quality control plan shall include the technical qualifications of the technical review team, to include the number of years of relevant experience.

(b) CESPD shall aid in fostering the technical competency of its Districts through partnering sessions, encouraging the professional development of its staff through training, participation in professional societies and conferences, etc. In addition, CESPD staff are available to provide training on the quality management guidelines and procedures outlined herein.

(8) Command Assistance Visits: The command assistance program shall ensure that district personnel are aware of and comply with all requirements in this quality management plan and in each district's quality management plan. Compliance by the districts and their contractors with this plan shall be discussed during these visits as well as any required corrective actions required to ensure compliance. These visits shall also serve to surface required modifications to the district's quality management plans, product specific, generic and programmatic quality control plans and to this CESPD quality management plan.

d. Delegated Responsibilities of CESPD: Approval authority for a number of programs has been delegated to CESPD. In addition to quality assurance responsibilities for technical review, CESPD has quality control responsibilities for policy compliance of delegated authorities. In that regard, CESPD is responsible for policy compliance review of products that are approved by the Division Commander. HQUSACE will provide policy QA of programs/documents delegated to CESPD. Procedures for CESPD policy compliance review of all decision documents for delegated programs are addressed within the appropriate subplan. See Appendix A, Table 2 for list of delegated responsibilities.

7 Appendices
APP A - Tables
APP B - Acronyms
APP C - Planning Subplan
APP D - Engineering Subplan
APP E - Real Estate Subplan
APP F - Construction Subplan
APP G - Model Quality Control Certification

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Brigadier General, U.S. Army
Commanding

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Appendix A

TABLES

APPENDIX A
TABLE 1
QCP REQUIREMENTS

The following is a list of projects/products produced in the Civil Works, MILCON and HTRW Programs and is not necessarily all inclusive. Next to each product is the suggested QCP type for that product. However, the QCP type used for an actual product must be tailored to the unique characteristics of the product and may differ from the suggestions on this list. All technical products shall require use of a QCP (individual, generic or programmatic), except those indicated as "NR" (NR = QCP not required). Districts may wish to develop an individual QCP in lieu of use of a generic or programmatic QCP for products requirements not covered under the latter plans. Specific details of QCP submittal requirements are addressed in the main body and subplans of the QMP.

Quality Control Plan Requirements		
DOCUMENT TYPES	**_QCP TYPE**	
	INDIVIDUAL	**_GENERIC**
DECISION DOCUMENTS		
General Investigations - Reconnaissance Report	_X	
General Investigations – Expedited Reconnaissance Report	_	Generic
General Investigations - Feasibility Report	_w/i PSP	
General Reevaluation Report	_w/i PSP	
Limited Reevaluation Report	_X	
Post Authorization Change Report	_X	
Major Rehabilitation Evaluation Report	_X	
Dam Safety Evaluation Report	_X	
Dredged Material Management Plan	_X	
Section 933 – Beneficial Use of Dredged Material	_X	

Section 934 – Extension to Existing Shore Protection Project	_X	
PL 84-99 Rehabilitation Report	_	Generic
Cost Allocation Report	_X	
Real Estate Design Memorandum (REDM)	_X	
IMPLEMENTATION DOCUMENTS		
Design Memorandum	_X	
Feature Design Memorandum	_X	
Plans & Specifications - Civil Works < $ 500,000		Generic
Plans & Specifications – Civil Works > $ 500,000	_X	
Plans & Specifications - MILCON < $ 1,000,000	_	Generic
Plans & Specifications - MILCON > $ 1,000,000	_X	
Design Analysis Report	_X	
	_	

Quality Control Plans Requirements (cont.)

DOCUMENT TYPES	**_QCP TYPE**	
	INDIVIDUAL	**_GENERIC**
_CONTINUING AUTHORITIES PROGRAM		
Section 14 Planning & Design Analysis	_	X
	_	
Section 103 DPR		X
Section 107 DPR		X
Section 111 DPR		X

Section 204 Initial Appraisal		_ X
Section 204 DPR	_	X
Section 205 DPR		X
Section 208 DPR		X
Section 1135 Project Modification Report		X
Section 1135 Preliminary Restoration Plan		Generic

OTHER DOCUMENTS

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Planning Assistance to State Report	_	Generic
Floodplain Management Study Report	_	Generic
	_	
	_	
Environmental Assessment/FONSI	_X	
_Environmental Impact Statement (when prepared as standalone)	_X	
_	_	
_	_	
_	_	
_	_	
_	_	

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Quality Control Plans Requirements (cont.)

DOCUMENT TYPES	QCP TYPE	
	INDIVIDUAL	PROGRAM
O&M REPORTS		
Reservoir Regulation Manual/Plan	NR	
Periodic Inspection Report		X
Instrumentation Updates		X
Dam Safety Emergency Action Plans		X
Water Quality Management Plan	NR	
O&M Manual	X	
Water Supply Contract/Modifications	NR	
Master Plans & Amendments		X
Water Supply Reallocations	X	

APPENDIX A
TABLE 2
APPROVAL AUTHORITIES DELEGATED TO CESPD

Approval authority for the following programs and/or documents resides within CESPD. In some cases, approval authority has been delegated to the Districts, but the policy review and quality assurance role remains in CESPD. Delegated approval authority for a particular activity or project may be rescinded by HQUSACE at their discretion. The most current regulation for the particular program/activity should be referred to for additional details. The following table lists documents in this category but it should not be considered all-inclusive:

DOCUMENT TYPE	NOTES:
DECISION DOCUMENTS:	
PL 84-99 Rehabilitation Reports	
Dredged Material Management Plans	
IMPLEMENTATION DOCUMENTS:	
Continuing Authorities Program (CAP) Design Analysis Reports: (Section 14, 103, 107, 111, 205, 208)	Per 16 Jun 95 HQUSACE guidance, primarily all actions are delegated to Division. See EC 1105-2-211 for details.
Section 1135 PRP and PMR	See details in EC 1105-2-206.
Section 204, Initial Appraisal and DPR	See dollar limitations in EC 1105-2-209.
OTHER DOCUMENTS:	
Section 22, Planning Assistance to States	
Floodplain Management Services Study Reports	
Project Cooperation Agreements	If consistent with models.
PED Agreements	If consistent with models.
O&M REPORTS:	
Reservoir Regulation Manual and Deviations	
Water Quality Management Plans	
O&M Manuals	
Master Plan and Amendments	

APPENDIX A

TABLE 3
CHECKLIST FOR
AUDITS OF QUALITY CONTROL PROCESS

File Item to be provided by District for all Audits

District Quality Management Plan (QMP)

File Items to be Reviewed for each Audited Study/Project:

Quality Control Plan (QCP)

CESPD Approval Letter of QCP

Incorporation of QCP into PSP or PMP

Products Generated

Documentation of QC Activities

Technical Review Strategy Session

Training of ITRT Members in QC Processes

Expertise of ITR Members

Design and Review Team Meetings

Seamless Review

Product Specific Review

Review Comment Resolution (Response, Action Required, Action Taken, Backchecks)

Quality of ITRT Comments

QC of A-E Work

Unresolved Comments/Issues

QC Certification of Products

Lessons Learned

Counterpart Discussions:

Study/Design and Review Team Leaders

Review Team Members

Scope of Interviews:

Distribution of QCP

Conformance to QCP Guidelines

Knowledge of Study/Design and Review Team Member's Responsibilities, Procedures, etc.

Independence of Reviewer's and their actions

QC Performance Indicators:

Conformance to CESPD and District QM Regulations

Changes to QCP that have/have not been made or approved

Thoroughness of reviews

Quality of review comments

Thorough documentation of Review Comments and their resolution

Knowledge and awareness of QC Responsibilities

Audit Process/Schedule:

Item	Complete By
Notification Letters to Districts (Requests data)	
CESPD Review of Requested Data	
Counterpart Discussions	
After Action Letters to Districts and Outbrief of District Commander	

APPENDIX B

ACRONYMS

A-E	Architect-Engineer
AFB	Alternative Formulation Briefing
ASA(CW)	Assistant Secretary of the Army (Civil Works)
ARMS	Automated Review Management System
BCOE	Biddability, Constructability, Operability and Environmental
BRAC	Base Realignment and Closure
CAP	Continuing Authorities Project
CECG	Corps of Engineers, Commander and Chief of Engineers
CECW-A	Corps of Engineers, Civil Works, Policy Division
CERE-A	Corps of Engineers, Real Estate Directorate,
COE	Corps of Engineers
CESPD	South Pacific Division, Corps of Engineers
CESPD-ET-C	South Pacific Division, Corps of Engineers,
CESPD-ET-E	South Pacific Division, Corps of Engineers,
CESPD-ET-P	South Pacific Division, Corps of Engineers,
CESPD-ET-R	South Pacific Division, Corps of Engineers,
DCE	Design-Construction Evaluation
DETS	Directorate of Engineering and Technical Services
DM	Design Memorandum
DOD	Department of Defense
DPR	Detailed Project Report
EBS	Environmetal Baseline Survey
EC	Engineering Circular

E&D	Engineering and Design
EIS	Environmental Impact Statement
ER	Engineering Regulation
FCSA	Feasibility Cost Sharing Agreement
FDM	Feature Design Memorandum
FRC	Feasibility Review Conference
FONSI	Finding Of No Significant Impact
GE	General Expense
GDC	General Design Conference
GI	General Investigation
GRR	General Reevaluation Report
HAP	Homeowners Assistance Program
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTRW	Hazardous, Toxic and Radiological Waste
IRC	Issue Resolution Conference
ITRT	Independent Technical Review Team
LEERD	Lands, Easements, Rights of Way and Disposal Sites
LRR	Limited Reevaluation Report
MILCON	Military Construction
MOA	Memorandum of Agreement
MSC	Major Subordinate Command
NEPA	National Environmental Policy Act
OMP	Operations Management Plan
O&M	Operation and Maintenance
PAS	Planning Assistance to States
PCA	Project Cooperation Agreement
PM	Project Manager
PMP	Project Management Plan
PMR	Project Modification Report

PRC	Project Review Conference
PRP	Preliminary Restoration Plan
PSP	Project Study Plan
QA	Quality Assurance
QAC	Quality Assurance Conference
QAP	Quality Assurance Plan
QC	Quality Control
QCP	Quality Control Plan
QMP	Quality Management Plan
REDM	Real Estate Design Memorandum
ROA	Report of Availability
RRC	Reconnaissance Review Conference
SACCR	Schedule and Cost Change Request
SFO	Support for Others
TM	Technical Manager
TQM	Total Quality Management
TRC	Technical Review Conference
USACE	U.S. Army Corps of Engineers
VE	Value Engineering

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APPENDIX C

PLANNING SUBPLAN

1. Purpose. This appendix establishes the process to assure the production of high quality Civil Works planning documents and supplements the guidance provided in the basic Directorate of Engineering and Technical Services (DETS) Quality Management Plan. It is intended to provide quality assurance and quality control guidance for conducting independent technical review of planning products within the South Pacific Division (CESPD). The guidance establishes a framework of general policies and principles to achieve planning services and documents which meet or exceed customer requirements, and are consistent with Corps policies and regulations. Guidance provided includes:

Main Body of Appendix C	Quality Management of Planning Products
Enclosure 1	South Pacific Division Milestone Requirements
Enclosure 2	Division Quality Assurance Plan

2. Applicability.

a. This appendix applies to all activities of the CESPD Planning Division, the Directorate of Engineering and Technical Services, and CESPD districts which are involved in the preparation, review or approval of planning documents.

b. The quality management process that is established in this appendix applies to all decision and implementation documents which are developed as a part of the CESPD planning program, including the following:

(1) Reconnaissance Reports

(2) Feasibility Reports

(3) General and Limited Reevaluation Reports

(4) Major Rehabilitation Reports involving either authorization or new investment decisions.

(5) Dredged Material Management Plans

(6) Documents developed in support of the Section 1135 and Section 206 Programs (except Plans and Specifications).

(7) Documents developed in support of the Continuing Authorities Programs (except Plans and Specifications).

(8) Documents developed in support of the Planning Assistance to States and Flood Plain Management Services Programs.

(9) Master Plans

(10) Financial Capability Analyses

(11) Project Study Plans

(12) Initial Appraisal Reports (Section 216)

(13) Special Regional Studies

(14) Planning Work For Others

c. The quality management process established in this appendix applies to all NEPA documents, including Environmental Impact Statements, Environmental Assessments and other related environmental documents, regardless of the program for which the documents are prepared. The quality control plans for all decision and implementation documents that are managed by other functional organizations and that are supported by environmental documentation shall include an independent technical review to insure consistency between the environmental documentation and the decision and implementation documents.

d. Planning elements have significant input to other documents, even though other functional organizations are responsible for managing their preparation. The technical review processes for these documents are described in the other appendices to the DETS Quality Management Plan.

e. Reports, memorandums, legal opinions and other documents that are required to support the planning program, that are not an integral part of the Civil Works planning documents, and that are the responsibility of either Real Estate or Counsel, shall be reviewed and approved in accordance with the procedures and guidance provided by the Directorate of Real Estate, HQUSACE and the HQUSACE Chief Counsel.

3. References. This appendix implements, or otherwise reflects, portions of the guidance presented in the following references:

a. CECW-PW Memorandum, dated 25 July 1995, subject: Planning Guidance Letter 95-02, Alternative Review Process.

b. CECW-PD Memorandum, dated 12 October 1995, subject: Planning guidance Letter 96-01, Reducing the Cost and Duration of Feasibility Studies.

c. ER 1105-2-100 - Policy and Planning, Planning Guidance, dated 28 December 1990.

d. EC 1165-2-203 - Technical and Policy Compliance Review, dated 15 October 1996.

e. CESPD-ET-P Memorandum, dated 1 October 1996, subject: Expedited Reconnaissance Phase Studies.

f. CESPD-ET-P Memorandum, dated 6 March 1997, subject: Draft Supplemental QA/QC Guidance for Section 1135, WRDA (as amended).

g. CECW-PE Memorandum, dated 26 March 1997, subject: Planning Guidance Letter 97-10, Shortening the Planning Process

4. Definitions. The definitions of terms used in this appendix are generally consistent with the definitions provided in the DETS Quality Management Plan. Within the text of this appendix, certain definitions are expanded upon to place them in a context that is appropriate for the planning program.

5. Relationship of the Division and Districts.

a. Division. The South Pacific Division (CESPD) Planning Division is responsible for quality assurance for planning documents prepared by the districts. The Planning Division shall review and approve the planning portion of each district's quality management plan and the quality control plans for all planning products. The Planning Division shall provide oversight of the quality control processes. And, the Planning Division shall perform policy compliance review for planning products that are approved at CESPD. This memorandum does not address the Planning Division's roles and responsibilities for other CESPD functions such as: command and control, program management or regional interface.

b. Districts. Districts are responsible for controlling quality for all work that they accomplish. To assist in the achievement of high quality, the districts shall develop, carry out and keep up to date their own quality management plans, as directed in the DETS Quality Management Plan. The quality management plans shall establish district roles, responsibilities and processes consistent with this appendix. Districts shall also be responsible for the development and implementation of quality control plans for decision and implementation documents covered by this appendix.

6. Division Quality Assurance Responsibilities.

a. Chief, Planning Division. At CESPD, the Chief, Planning Division is responsible for the following quality assurance activities:

(1) Providing technical oversight of the district's planning programs.

(2) Developing procedures and guidelines for accomplishing interdisciplinary planning studies.

(3) Assuring quality of district technical review programs for all planning studies, reports and activities.

(4) Approval of the district's quality management plan and quality control plans for planning products. Certifying the adequacy of planning components of other district quality management and quality control plans.

(5) Providing technical and planning management support to the districts, as requested. Providing assistance to districts in resolving major technical issues.

(6) Assuring current policies are implemented in district planning products. Facilitating resolution of policy issues with HQUSACE and others.

(7) Chairing issue resolution conferences.

(8) Certifying district final decision documents for public distribution, forwarding final decision documents to HQUSACE for policy review and processing, and providing oversight of the Washington-level review.

(9) Certifying adequacy of environmental impact statements and other documents which demonstrate CESPD compliance with environmental statutes.

(10) Recommending Division Commander approval of planning activities that have been delegated to CESPD.

(11) Monitoring customer satisfaction with district planning products.

(12) Leading the planning portion of the command assistance program.

b. Technical Manager. For the purpose of this appendix, technical managers are the planning managers from CESPD who are responsible for the various parts of the planning program. Technical managers at the district level, who are assigned the responsibility for coordinating and guiding the development of a study through activities of the study team are referred to as study managers in this appendix. At CESPD, the planning technical managers often serve two roles. The first role includes the responsibility for managing the quality assurance program for an assigned study or program. The second role includes the responsibility for the quality assurance oversight in specific technical areas. While the list of responsibilities that follow are mostly associated with the first role, most of the responsibilities are also common to the second role.

(1) Providing informal consultation regarding technical and policy issues.

(2) Managing the CESPD quality assurance team for assigned studies and seeking quality assurance support as required from other team members.

(3) Participating in selected technical review strategy sessions at the start of major studies.

(4) Participating in CESPD mandated milestone conferences and other significant meetings, and preparing quality assurance assessments.

(5) Facilitating the resolution of policy issues and major technical issues with HQUSACE and others.

(6) Facilitating issue resolution conferences with the districts and facilitating the RRCs, FRCs and Alternative Formulation Briefings (AFBs) with HQUSACE.

(7) Managing and performing policy compliance review for activities that have been delegated to CESPD.

(8) Assisting in local sponsor education.

(9) Providing training, guidance for review of documents and related "mentoring" activities with district staff.

(10) Recommending approval or certification of planning products within assigned programs.

(11) Reviewing selected planning products and the associated technical review documentation to assess the adequacy of the district's quality control program.

(12) Managing and participating in technical workshops to address systemic issues and new procedures.

(13) Managing process action teams to improve the planning process and the production of planning reports.

(14) Providing input to the command assistance program.

7. District Quality Control Responsibilities. Planning function chiefs, other function chiefs, the study team, the study manager, the review team and the review team leader all have significant roles and responsibilities in achieving quality technical products. The roles and responsibilities of all the participating individuals shall be described in the district's quality management plan and shall include the responsibilities that are outlined in the independent technical review process which is described below.

a. Function Chiefs. The Chief, Planning Division in the Sacramento and Los Angeles Districts, the Chief, Planning/ Engineering in the San Francisco District and the Chief, Planning and Environmental Branch in the Albuquerque District are the planning function chiefs. These planning function chiefs shall have the overall responsibility for the technical quality of planning products. The district chiefs of the Construction/Operations, Engineering and Real Estate

Divisions, and the DDE(PM), are also referred to as function chiefs. At the discretion of the planning function chief, chiefs of functional organizations such as economics, environmental resources and plan formulation may also be considered function chiefs for the processes set forth in this appendix.

b. Independent Technical Review Process. Quality control is the appropriate evaluation of technical products and processes to ensure that they meet customer requirements and are in compliance with applicable laws, regulations, and sound technical practices of the disciplines involved. This is to be accomplished through a process of independent technical review. Quality assurance includes the oversight of the independent technical review process. The independent technical review process begins with a technical review strategy session, continues with seamless in-progress reviews and finishes with a comprehensive review of the final product.

c. Technical Review Strategy Session. The technical review strategy session shall form the basis for a quality control plan for all major studies. For feasibility studies and general reevaluation reports, this session will be held during the preparation of the project study plan (PSP). For other types of major products, this session shall be held early in the product development phase. The session shall be chaired by the planning function chief. Also attending would be other functional chiefs and representatives of the local cost-sharing sponsor. CESPD's technical managers may also attend selected sessions. In addition to establishing the independent review team, the participants shall establish the level of review, identify documents to be reviewed and identify policy or major technical issues that need to be brought to the attention of CESPD for resolution early in the study. This session should be combined with other initial formulation/scoping meetings.

d. Formation of Review Teams. Similar to the study teams, review teams shall be assigned representatives that have expertise in plan formulation, economics, environmental, hydrology and hydraulics or coastal engineering, civil design, geotechnical, real estate and other disciplines, as required. Since careful coordination between these disciplines is required, the review team must include senior staff with broad expertise. A goal will be the establishment of an informed, objective review team with full accountability to maintain objectivity. To insure this objectivity, the members of the review teams must be independent from those who perform the work. Supervisors of study team members are not to be included on the review team. In addition, technical managers of contracts that provide assumptions, clarify guidance or otherwise participate in the preparation of the products are not to be review team members. Review team members shall serve in a part time capacity and any one individual's review responsibilities shall not exceed 50% of their time. If sufficient staff is not available in a district, or if specialized review expertise is required, functional chiefs shall supplement the review team with personnel

from other districts, divisions, headquarters, centers of expertise, laboratories, the local sponsor's organization or by contract. Project or study funds shall be used to pay for the cost of conducting technical reviews. A district in need of review assistance shall find the expertise needed and negotiate the schedule and cost for the required services. Assistance in this effort may be provided by CESPD's counterpart responsible for quality assurance. The formation of the review team should consider regional interests, resources, special expertise requirements and unusual complexity.

e. Quality Control Plans. Quality control plans shall be prepared using information developed at the technical review strategy session. Specific quality control plans shall be prepared for complex planning products, such as all specifically authorized feasibility studies and general reevaluation studies. A generic quality control plan shall be prepared for small or low risk products, such as reconnaissance studies and most products prepared for the Continuing Authorities Program (CAP). In developing the quality control plan, the districts are encouraged to rely heavily on their approved quality management plans, through reference, and highlight only exceptions. For major studies entering the feasibility phase, and for the initiation of general reevaluation studies, the quality control plan shall be integrated into, and approved with, the project study plan. All other quality control plans shall be submitted to the South Pacific Division for review and approval, as part of the quality assurance program. A quality control plan, or quality control portions of a project study plan, shall, as a minimum, include the following:

(1) A statement of the quality control plan objective.

(2) A statement of the guidelines that will be followed for the technical review.

(3) A roster of the proposed project study team or, in the case of a generic plan, a list from which the roster would be selected.

(4) A roster of the proposed technical review team with the number of years and bullet description of relevant experience for each member. Similarly, in the case of a generic plan, a list from which the roster would be selected.

(5) A list of documents to be reviewed by the technical review team.

(6) A milestone list and schedule for review activities which integrate the mandated

division milestones.

(7) A discussion of proposed deviations from the approved quality management plan.

(8) The cost estimate for conducting the independent technical review will be included either in the quality control plan, or as a separate line item in the project study plan.

(9) Proposed revisions to Reference 3.c. require a quality assurance plan for each study. A generic quality assurance plan which may be tailored to each study is included as Enclosure 2. This plan is to be included as an attachment to each project study plan.

f. Seamless Single Discipline Review. To maintain a seamless review concept, products of individual study team members shall, consistent with the scope and complexity of the products, receive technical review from review team members before they are released to other members of the study team or integrated into the overall study. A memorandum of record shall be the basis for establishing accountability for the quality of the product and the review. The review team member shall prepare the memorandum which shall become part of the review team's records. Specific issues raised in the review shall be documented in a comment, response, action required and action taken format. Unresolved differences between the study and review team members shall be documented, along with the basis for the functional chief's decision on the issue. The Automated Review Management System (ARMS) may be used, at the option of the district. These reviews should be completed prior to major decision points in the planning process so that the technical results can be relied upon in setting the course for further study activities.

g. Product Review.

(1) Products. The quality control plan shall identify products to be reviewed by the technical review team. The products would include: documentation for the major milestone conferences, documentation for mandatory issue resolution conferences, draft documents for public release and final documents. These products shall be essentially complete before review is undertaken and the branch and section chiefs shall be responsible for accuracy of the computations through design checks and other internal procedures, prior to the independent technical review.

(2) Scope. The documents shall be reviewed using an interdisciplinary team approach.

The document shall be reviewed for scope, adequate level of detail, compliance with guidelines and policy, consistency, accuracy, and comprehensiveness. The independent technical review will specifically address several areas of emphasis that are particularly important to planning products. The review must insure that the document tells a story that is a coherent whole, the steps of the analyses are consistent and follow logically, the assumptions are convincing and consistent, especially those related to the probable/most likely with and without project futures, and outstanding action items from the RRC, AFB, FRC, milestone conferences and other reviews are adequately addressed.

(3) Integration of Prior Reviews. At the beginning of a document review, team members shall review their counterpart's presentations in the document. The review shall determine whether prior seamless review activities have produced the technical product envisioned during the seamless review. Material reviewed in the seamless review phase shall not be subjected to additional detailed review, except when the presentation in the documents is significantly different from the work previously reviewed or it is the judgement of the review team that the technical material may be causing the plan formulation process to produce unreasonable or inconsistent results.

(4) Interdisciplinary Review. All members of the review team shall be expected to raise concerns in other functional areas. These concerns shall be addressed to the review team as a whole. The review team shall then work through the appropriate review team counterparts to resolve technical issues. Review team meetings shall be open to representatives of CESPD for quality assurance purposes. It is the responsibility of the review team leader to seek resolution of disagreements among review team members before referring issues to the study team members.

(5) Responses to Review Comments. The review team shall coordinate with the study team to resolve the issues raised. Along with a description of the scope of the review, all review comments shall be documented in a comment, response, action required and action taken format. In those cases where unresolved disputes between the study team and the review team are decided by a functional chief, the review documentation shall provide the basis for the functional chief's decision. The ARMS system may be used at the option of the district.

(6) Final Documentation. Proper documentation is a key component of an effective independent technical review process. Significant decisions must be recorded and the entire process must leave a clear audit trail. The documentation of the independent technical review shall be included with the submission to CESPD. For a final feasibility report, the review documentation will include memorandums from seamless single discipline review, memorandums

from the milestone conferences and memorandums from the draft and final product reviews. The purpose of the review documentation is to show the full scope of the independent technical review and a summary of the review need not be prepared if action items are appropriately tracked.

(7) District Certification. Documentation of the independent technical review shall be accompanied by a certification, indicating that the independent technical review process has been completed and that all technical issues have been resolved. This requirement is discussed further in Paragraph 12.

h. Dispute Resolution. The review team leader shall review the documentation to identify any outstanding disagreements between members of the study team and the review team. Any disagreements shall be brought to the attention of the appropriate functional chief to facilitate resolution of technical disagreements between study and review team counterparts. If a dispute is between representatives from different functional organizations, then the issue shall be forwarded to the planning function chief, who shall facilitate resolution. The final decision shall be made by the appropriate functional chief. The functional chief may consult with CESPD staff, who can serve as an unbiased sounding board, or major technical issues may be forwarded to CESPD for resolution.

i. Policy Issue Resolution. Issues involving policy interpretation shall be brought to the attention of the planning function chief for resolution or referral to CESPD. In some cases, the planning function chief, may request CESPD to hold an issue resolution conference to resolve major policy issues. CESPD may also arrange for HQUSACE input or participation in the issue resolution conference.

j. Use of Checklists. Checklists may be used to guide the technical review and insure that critical items are not overlooked. Checklists may be used to simplify the documentation of the review. Checklists may also be used to track outstanding action items for a particular study. The use of checklists shall not, however, eliminate the requirement to document specific comments.

8. Quality Assurance Process. In addition to the oversight of the technical review process as indicated above, quality assurance by CESPD shall include the following:

a. Informal Consultation. The cornerstone of CESPD's role in quality assurance is to provide

informal consultation regarding technical and policy issues with district and customer counterparts.

b. Approval of Quality Control Plans. For feasibility phase studies and general reevaluation reports, the quality control portion of the project study plan shall be approved as part of the certification process for the project study plan. For reconnaissance studies and other planning products, either a generic quality control plan or a product specific quality control plan shall be submitted separately to CESPD-ET-P for approval. The review shall be managed by the assigned CESPD technical manager who shall have the responsibility for coordinating, screening and resolving comments, and serve as the single point of contact for the CESPD approval action. The review shall be orientated towards meeting the general requirements set forth in Paragraph 7.d. of this appendix. Unless there are substantive issues, the district may assume that CESPD approval would be provided in approximately two weeks.

c. Milestone Conferences. Milestone conferences shall serve as checkpoints to ensure that quality control has taken place and that appropriate progress is being made in the studies. The results of the review team and the resolution of issues shall be presented by the review team leader. The purpose of the presentation shall be to confirm that the district is following the quality control plan and evaluate any changes. CESPD participation in these conferences shall be a significant element of CESPD's quality assurance program. This opportunity shall be used to ensure, for example, that the districts are making appropriate site visits, public participation has been adequate and that the local sponsor is satisfied with the progress of the study. CESPD technical managers will attend most milestone conferences held during the feasibility phase and selected conferences during the reconnaissance phase. Further discussion of the milestone conferences is presented in Paragraph 9.

d. Review of Sample Products. CESPD shall conduct oversight reviews of selected planning documents produced by the district. These reviews are for the purpose of identifying system problems, trends and possible improvements to the process, and assure compliance with current HQUSACE policy. The selection of studies for detailed review shall be based on a number of criteria, including: the expressed needs and concerns of the district, new processes or techniques, or studies that have poor performance histories.

e. Issue Resolution Conferences. Three types of issue resolution conferences will be held. The first would be at the request of a district to obtain technical and policy assistance on major issues, usually on a particular project. The second would be held at the request of CESPD, to address major issues raised as a result of quality assurance activities. And, the third would be

those mandatory issue resolution conferences that include the FRC and RRC, and upon the recommendation of CESPD, the AFB, all of which are attended by HQUSACE. All issue resolution conferences shall be chaired by CESPD. A draft memorandum for each conference shall be developed during the conference and signed within fifteen working days. For a mandatory conference with HQUSACE participation, the memorandum shall be signed by the Chief of Planning at HQUSACE. The CESPD Chief, Planning Division will sign the memorandum for other conferences.

f. Technical Workshops. Because of the press of ongoing work, training, technology transfer, and the promotion of innovation often do not get the required attention. These activities shall normally be accomplished through technical workshops. The most important of these is the South Pacific Division's annual planning workshop. This workshop is attended by members of the planning community from the districts, CESPD, and from HQUSACE. The workshops provide an outstanding opportunity to present and address current planning issues and are an important part of the training program for all planners. Every opportunity to attend these workshops must be provided to members of the planning community.

g. Monitoring Technical Competency. Assuring that the team members who perform the work have the knowledge, skills and experience is an essential element of quality control and quality assurance. Quality assurance includes an evaluation of the district's development and maintenance of the technical competency for production and review, and assistance to enhance technical competency. Sharing technical capability between districts will be necessary to insure that proper experts are available for technical review and CESPD may assist in facilitating these efforts. Distribution of division-wide resource allocations is a CESPD responsibility and the CESPD Planning Division shall be an active proponent for the planning organizations in the districts.

h. Recognition Programs. CESPD-ET-P shall manage those programs that recognize and promote outstanding achievement in the production of quality planning products and planning services. These programs include the annual Planning Excellence Award and Outstanding Planning Achievement Awards.

i. Command Assistance Visits. The command assistance program shall ensure that all requirements in this appendix and the requirements reflected in each district's quality management plan are discussed with district personnel.

9. Milestone System. The quality management plan for each district shall include a milestone system which shall be employed as a performance measurement system for study teams and review teams working on planning products. Performance at each milestone shall be documented with a memorandum to be signed by the planning functional chief. While the milestone requirements that follow are specific to reconnaissance and feasibility reports, the districts shall establish appropriate internal milestones for other products in the quality control plans.

a. Reconnaissance and Feasibility Milestones. Within the district milestone system, CESPD mandated milestone conferences shall be scheduled to occur at significant decision points in the study process. One of the functions of the milestone conferences shall be to recognize that key steps have been accomplished. The requirements for each of the four CESPD mandated milestone conferences are included in Enclosure 1.

b. Level of Participation. HQUSACE will be provided the opportunity to participate in all CESPD mandated milestone conferences during the feasibility phase. When this occurs, the conference will follow the guidance for other issue resolution conferences as indicated above in Paragraph 8.e. In those cases where a formal CESPD or higher headquarters position regarding study issues is required by the district and a meeting is the best vehicle for developing this position, a CESPD issue resolution conference may, also, be requested. Other milestone conferences will be chaired by the district planning functional chief, CESPD participation would be limited to informal consultation and oversight for quality assurance, and the conference memorandum will be signed by the district planning functional chief.

c. Technical Review Requirements. Technical review shall be broken down into manageable parts that correspond to the CESPD mandated milestone conferences. Therefore, documentation that is developed in support of conference discussions shall be reviewed by the technical review team and, to the degree practicable, issues should be resolved in advance of the conference. Since this quality control will have occurred prior to each milestone conference, the conference is free to address critical outstanding issues and set direction for the next step of the study, since a firm technical basis for making decisions will have already been established.

d. Submittal of Pre-conference Documentation. Unless alternative arrangements are made, the district shall submit to CESPD eight copies of the same pre-conference documentation that is furnished to the independent review team, or provide this same pre-conference documentation electronically. Before the conference is held, the review documentation from the review team shall also be provided to all conference participants. A major goal of the process is to prepare the conference participants to make decisions regarding the future course of the study, which can be

compromised if there are many outstanding technical issues. Towards this end, it is desirable for the technical review team and the study team to have resolved as many issues as possible prior to the conference. Because of time constraints, especially in the reconnaissance phase, this activity may not be complete by the date of the conference. The review documentation that is provided to the conference participants should, to the degree possible, be annotated to indicate major issues that require discussion.

e. Areas of Special Emphasis. Each CESPD milestone conference that is held during the feasibility phase will include a review of the status of the project study plan to clarify any potential changes in cost and schedule. The reconnaissance guidance memorandum (RGM) will be reviewed at each conference to insure that specific study requirements established in the reconnaissance phase are addressed. Also, the transmittal letter for the documentation in support of an AFB will clearly outline all issues that should be addressed at the AFB.

f. Expedited Reconnaissance Studies. Milestone conference requirements for studies undertaken through the expedited reconnaissance phase process are set forth in Reference 3.h., which differ from the requirements in Enclosure 1. The first milestone conference in the feasibility phase will be expanded to incorporate the rescoping of the feasibility phase and HQUSACE participation that is outlined in Reference 3.g. Preconference documentation must be provided to HQUSACE at least 30 days in advance of the conference. This documentation must clearly describe the assumptions and conclusions regarding the without project condition and provided a clear discussion of the formulation and screening of preliminary alternatives.

g. Quality Assurance Assessments. Following a CESPD mandated milestone conference with a CESPD technical manager in attendance, the CESPD technical manager shall prepare a quality assurance assessment. A copy of this assessment shall be forwarded to the district planning functional chief within two weeks of the conference. A copy of the assessment will also be provided to the CESPD Chief, Planning Division. The compilation of these assessments will form the basis for CESPD's review of the quality control program during command assistance visits. CESPD technical managers shall be encouraged to attend selected meetings of the technical review team during the preparation of the draft and final reports and, as indicated above, the technical review strategy session. The results of this attendance will be documented through assessments in a similar manner.

10. Expedited Reconnaissance Phase Studies. Guidance for expedited reconnaissance phase studies is provided in Reference 3.e. As directed in this guidance, each district shall prepare a generic quality control/study plan for the preparation of all expedited reconnaissance phase study products. The plan will include a sample schedule and sample distribution of costs that would be

adapted by the study manager for each specific reconnaissance study, without further approval by CESPD.

a. Within the first month after the initiation of an expedited reconnaissance study, the study team shall be formed from potential candidates that are listed in the generic quality control/study plan and the plan shall be adapted for the implementation of the specific study.

b. The further reliance on informed judgement emphasizes the need for even more experienced study team members. Periodic peer consultation, rather than review will be included, especially after initial field investigations, to broaden and test the conclusions reached from the limited data available. Individuals participating in peer consultation will be selected from the same approved list as the study team. These individuals shall be the most experienced in the planning process, with the ability to draw conclusions from limited data.

c. The products developed during the expedited reconnaissance phase include the project study plan and a Section 905(b) appraisal. These products shall be subject to supervisory review during staffing. Independent technical review of these products shall be limited to a single recognized expert in planning procedures and the planning process. This individual shall be selected from a list that would, also, be included in the generic quality control/study plan. The independent technical review shall insure that the documents reflect a coherent logic and that the assumptions and conclusions are convincing and consistent. The results of this review shall be included in a memorandum which shall be included in the final reconnaissance submittal to CESPD.

d. As indicated in Reference 3.e., an CESPD mandated milestone conference will be held to preview the reconnaissance findings and will be used to establish a corporate district-sponsor position relative to the direction for the feasibility phase. The conference will normally involve all members of the study team who will participate in the identification of the process for competing outstanding items and resolving outstanding issues. CESPD's technical manager and representatives of the proposed local cost-sharing sponsor will also be given the opportunity to attend. The independent document review will occur between this interim milestone conference and the submittal of the negotiated PSP and Section 905(b) Appraisal.

11. Delegated Authorities.

a. Quality Control. The quality control activities for the Continuing Authorities Program (CAP) and Section 1135 projects will follow the concepts established above. However, the districts are encouraged to be innovative within this guidance to exercise efficient use of limited funds. Except for complex projects (multi-faceted characteristics, subject to numerous policy determinations, unique technical problems or potentials for numerous requirements for deviations to the model Project Cooperation Agreement), the plan for technical review may be established in a generic quality control plan developed for the specific continuing authorities programs.

(1) Standing operating procedures for Preliminary Restoration Plans and Initial Appraisals shall be developed by each district that will include supervisory review and oversight review by the designated district CAP or Section 1135 Coordinators, prior to transmission to CESPD. These reviews will be oriented to meet the requirements established in Reference 3.f.

(2) A generic quality control plan may either establish a standing team for the review of documents covered by the generic quality control plan, or present a roster of reviewers from which an individual review team would be selected. The generic quality control plan will also identify products to be reviewed, durations required for review and required meetings and conferences. The generic quality control plan shall address all products that are prepared for the specific continuing authorities program.

(3) The generic quality control plan will be adapted for a particular study, or a separate quality control plan will be prepared for CESPD approval no later than 30 days after the initial work allowance for the decision document is received. Intermediate milestone conferences are encouraged and would be held at the option of the district. Review team members shall be included in discussions with the study team as the proposed project is framed and products are identified.

(4) Documentation and certification of the district's independent technical review will be submitted with the draft and final decision documents, which will also allow CESPD to perform a quality assurance check of the independent technical review process.

b. Quality Assurance and Policy Compliance. Approval authority and policy compliance review for the CAP and the Section 1135 programs have been delegated to CESPD. For these studies and projects, CESPD has both the quality assurance responsibility for technical quality, as well as the quality control responsibility for policy. CESPD must, therefore, conduct a policy compliance review of studies and projects submitted by districts for CESPD approval. The

assigned technical manager shall be responsible for the quality assurance and policy compliance review. Approval activities shall be managed through the district and CESPD CAP and Section 1135 coordinators.

(1) Issues that arise over appropriate level of detail should be elevated to the Division for early resolution.

(2) At least two weeks prior to the proposed release of a draft feasibility report for public review, the report will be furnished to CESPD for an initial policy compliance review. This review will use the checklist that CECW-AR has developed for policy compliance review of other decision documents and that is included in Attachment 2 of Reference 3.d. Within ten working days, the District will be notified that they may release the report for public review, or that there are significant policy issues that may materially effect the conclusions and recommendations in the report which would cause the report not to be released. CESPD will continue its review, concurrent with the public review of the report, concluding this effort within 30 days from the receipt of the documents.

(3) Management of the policy compliance review will be accomplished at the Division for decision documents recommending project unless the total cost is $6,000,000 or less, or other program specific criteria apply. For projects which exceed this criteria, CESPD will forward the final report to CECW-AR for HQUSACE policy review, with an information copy to CECW-PE. The purpose of the CESPD and CECW-AR policy reviews will be to insure that the study objectives have been achieved at the appropriate level of detail of analysis and policy issues regarding eligibility and consistency have been resolved.

12. Certification of Quality Control. Documentation of the independent technical review shall be accompanied by a certification, indicating that the independent technical review process has been completed and that all technical issues have been resolved. This requirement applies to all implementation and decision documents that will be approved by the district commander, documents that will be forwarded to CESPD for approval and all documentation that will be forwarded by the division to HQUSACE for either review or approval. For the feasibility study process, it applies to all final reconnaissance reports, pre-conference documentation for issue resolution conferences and alternative formulation briefings and draft and final feasibility report submittals. For submittals that are transmitted to the division under the district commander's signature, such as a final feasibility report or GRR, the certification will follow the example that is included as Appendix G to the DETS Quality Management Plan. This certification is to be signed by both the planning function chief and the district commander and will include the review

documentation as enclosures. For submittals that are normally transmitted under the signature of the planning function chief, the certification may be included in a transmittal letter for the product and review documentation, which would be signed by the planning function chief.

ENCLOSURE 1

SOUTH PACIFIC DIVISION MILESTONE REQUIREMENTS

1. RECONNAISSANCE PHASE

a. R3 Milestone Conference:

The district study team shall present the existing condition, assumptions for the without project condition, results of initial public involvement, problems and opportunities, the identification of preliminary planning objectives and planning constraints, the full array of measures or plans that could meet the planning objectives, and an initial screening of those measures or plans. This initial screening could be at an intuitive level and would include representatives from all effected disciplines.

The technical review manager shall summarize the results of the technical review and the resolution of issues. These issues would normally involve the establishment of the without project condition.

Any policy questions shall also be raised at the milestone conference and if these cannot be resolved at the conference, the CESPD technical manager shall raise them to the CESPD Chief, Planning Division or HQUSACE for resolution.

This milestone conference shall mark the completion of the problem identification stage of the reconnaissance phase and shall conclude with a consensus on the alternative measures and plans that will be considered for more detailed evaluation in the reconnaissance study. Potential project study plan requirements shall also be explored.

b. R4 Milestone Conference:

This conference shall provide a preview of the reconnaissance report findings and shall mark the completion of the reconnaissance-level evaluation of the alterative measures and plans.

The study team shall present the alternatives considered, the with-project conditions, the desires of potential local sponsors and a preliminary evaluation of Federal interest.

Again, the technical review manager shall summarize the results of the technical review and the resolution of issues. These issues would normally involve the formulation and design of alternative plans and the establishment of the with-project conditions.

Again, any policy questions shall also be raised at the milestone conference and if these cannot be resolved, the CESPD technical manager will raise them to the CESPD Chief, Planning Division or HQUSACE for resolution.

This milestone conference shall conclude with a consensus on the recommendation that will be made in the reconnaissance report regarding the Federal interest in entering a feasibility phase, recommendations that may be considered with other authorities, and alternatives that will be carried forward into the feasibility phase for further development. Study requirements for the feasibility phase shall also be established as input to the development of the project study plan.

2. FEASIBILITY PHASE

a. F3 Milestone Conference:

The district study team shall present the refinement of existing conditions, any new assumptions for the without project condition, results of additional public involvement, problems and opportunities, the identification of specific planning objectives and planning constraints, and the evaluation of the preliminary plans considered in the feasibility phase.

The technical review manager shall summarize the results of the technical review and the

resolution of issues. These issues would normally involve the refinement of the without project conditions and the formulation, design and evaluation of with-project conditions for the preliminary plans.

The study cost-sharing sponsor shall summarize the views of the agency and identify any plans that the agency wishes to include in the final array of alternatives.

Any policy questions shall also be raised at the milestone conference and if these cannot be resolved, the CESPD technical manager will raise them to the CESPD Chief, Planning Division or HQUSACE for resolution. Federal interest shall be reviewed.

This milestone conference shall mark the completion of the screening of preliminary plans and shall conclude with a consensus on the plans that will be considered in the final array of alternatives that will be considered in detail in the feasibility report.

b. F4 Milestone Conference:

This conference shall mark the completion of the evaluation of the final array of plans and prepare for the alternative formulation briefing that will be held with HQUSACE and the OASA(CW).

The study team shall present the evaluation of the final array of alternatives that will be presented in the feasibility study.

Again, the technical review manager shall summarize the results of the technical review and the resolution of issues. These issues would normally involve the formulation, design and detailed evaluation of the with-project conditions for the final array of plans.

The study cost-sharing sponsor shall summarize the views of the agency and identify any issues that must be resolved prior to the selection of a locally preferred plan.

Federal interest shall be reviewed.

This conference shall concentrate on the identification of policy issues that will be of concern at the alternative formulation briefing (AFB). It shall conclude with a listing of the issues that shall

be presented at the AFB and a consensus that the evaluations are adequate to select a locally preferred plan and the NED Plan. There will be no surprises at the AFB and CESPD shall actively support the district.

ENCLOSURE 2

DIVISION QUALITY ASSURANCE PLAN

The assigned CESPD technical manager for this study is _____ who will be responsible for study specific quality assurance activities and management of the CESPD quality assurance team. General procedures for quality assurance related to planning products are established in Appendix C of CESPD R 1110-1-8, Quality Management Plan. Quality assurance activities specific to this study include the following:

1. Informal and Ad Hoc Consultation: The cornerstone of CESPD's role in quality assurance is to provide informal consultation regarding technical and policy issues with district and customer counterparts. The assigned CESPD technical manager will facilitate the resolution of policy issues and major technical issues with HQUSACE and others.

a. Assistance in finding sources of additional expertise to required fulfill technical review requirements may be provided by CESPD staff. District functional chief's may also consult with the CESPD staff, who can serve as an unbiased sounding board, or major technical issues may be forwarded to CESPD for resolution.

b. CESPD staff may also assist in local sponsor education and will monitor customer satisfaction with district's planning products.

2. CESPD Mandated Milestone Conferences: Two CESPD mandated milestone conferences are included in the study schedule. CESPD participation in these conferences is a significant element of the quality assurance program. Milestone conferences shall serve as checkpoints to ensure that quality control has taken place and that appropriate progress is being made in the study. The results of the review team and the resolution of issues shall be presented by the review team leader. The purpose of the presentation shall be to confirm that the district is following the quality control plan and evaluate any changes. This opportunity shall be used to ensure, for example, that the district is making appropriate site visits, public participation has been adequate and that the local sponsor is satisfied with the progress of the study.

a. Assigned CESPD technical managers will attend most milestone conferences held during the feasibility phase and prepare quality assurance assessments that will be forwarded to the district Chief, Planning Division. Normal CESPD participation at these conferences will be

limited to informal consultation and oversight for quality assurance.

b. Unless alternative arrangements are made, the district shall submit to CESPD eight copies of the same pre-conference documentation that is furnished to the independent review team, or provide this same pre-conference documentation electronically. Before the conference is held, the review documentation from the review team shall also be provided to all conference participants. A major goal of the process is to prepare the conference participants to make decisions regarding the future course of the study, which can be compromised if there are many outstanding technical issues. Towards this end, it is desirable for the technical review team and the study team to have resolved as many issues as possible prior to the conference.

c. HQUSACE will be given the opportunity to participate in each of the milestone conferences. When this participation occurs, the conference will be held as an issue resolution conference, as described below.

d. Each CESPD milestone conference that is held during the feasibility phase will include a review of the status of the project study plan to clarify any potential changes in cost and schedule. The reconnaissance guidance memorandum (RGM) will also be reviewed at each conference to insure that specific study requirements established in the reconnaissance phase are addressed.

3. Issue Resolution Conferences: Three types of issue resolution conferences may be held. The first could be at the request of a district to obtain technical and policy assistance on major issues. The second would be held at the request of CESPD, to address major issues raised as a result of quality assurance activities. The requirement for either of these conference has not yet been identified. The third will be the mandatory issue resolution conferences which include the FRC and the AFB, which are included in the study schedule.

a. In those cases where a formal CESPD (or higher headquarters) position regarding study issues is required and a meeting is the best vehicle for developing this position, the Chief, Planning Division may request an issue resolution conference with CESPD. CESPD may also arrange for HQUSACE input or participation in the conference. When HQUSACE is to participate in a conference, the preconference documentation will be provided far enough in advance to allow for a 30 day minimum review, unless advanced arrangements are made.

b. All issue resolution conferences shall be chaired by the CESPD Chief, Planning Division or

designee. A draft memorandum for each conference shall be developed during the conference and signed within fifteen working days. For a mandatory conference with HQUSACE participation, the memorandum shall be signed by the Chief of Planning at HQUSACE. The CESPD Chief, Planning Division will sign the memorandum for other conferences.

4. Processing of Products: CESPD will prepare the Division Commander's endorsement of the feasibility report and Division Commander's Public Notice, and provide oversight of the Washington-level review. The documentation of the independent technical review shall be included with the submission to CESPD. For the final feasibility report, the review documentation will include memorandums from seamless single discipline review, memorandums from the milestone conferences, memorandums from the draft and final product reviews.

5. Review of Sample Products. CESPD conducts oversight reviews of selected planning documents and the associated technical review documentation produced by the district. These reviews are for the purpose of identifying system problems, trends and possible improvements to the process, and assure compliance with current HQUSACE policy. The selection of studies for detailed review is based on a number of criteria, including: the expressed needs and concerns of the district, new processes or techniques, or studies that have poor performance histories. As this study progresses, it will be assessed to determine if an audit is appropriate.

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APPENDIX D

ENGINEERING SUBPLAN

1. Purpose. This appendix provides the general policies and procedures for the execution of quality management activities in the Engineering Division, Engineering and Technical Services Directorate (DETS), South Pacific Division and in the Engineering Divisions of the Districts within the South Pacific Division. Guidance provided includes:

Main Body of Appendix D	Quality Management of Engineering Products
Enclosure 1	QM Guidelines for Dam Safety Program
Enclosure 2	CESPD Engineering Division Milestone
Enclosure 3	QM Guidelines for HTRW & CDQM
Enclosure 4	Definitions used in HTRW & CDQM Projects
Enclosure 5	Acronyms used in HTRW & CDQM Projects

2. Applicability.

a. This appendix supplements the guidelines provided in the main body of the Quality Management Plan and applies to all activities of the Engineering Division, DETS and CESPD Districts having responsibility for the preparation, review and approval of engineering products.

b. The quality management process outlined herein applies to all engineering services and

products.

c. Exception. Due to its special requirements, Water Control Management has been classified as an unique function of the Corps as described in the Division Organizational Guidelines. The implementation of all water control management activities shall comply with existing regulations and guidance. Activities involved with developing water control plans, gathering and processing data in support of regulating decisions, and operation of the reservoirs in accordance with the plans are collectively referred to as "Water Control Management." EM 1110-2-3600 "Management of Water Control Systems" and ER 1110-2-240 "Water Control Management" are basic technical and policy references describing the mission and activities for the Corps water control management functions. Quality assurance and quality control of water control management products shall be performed at CESPD as prescribed in the existing engineering regulations and guidance and following the general quality management principles set forth in this quality management plan. The processes associated specifically with CESPD are outlined in draft CESPD Regulation 1110-2-4.

3. References.

a. ER 5-7-1 (FR), Project Management

b. ER 1110-1-12, Engineering and Design Quality Management

c. ER 1110-2-1150, Engineering and Design for Civil Works

d. ER 1110-345-100, Design Policy for Military Construction

g. EC 1165-2-203 Technical Policy Compliance Review.

h. CEMP-ET Memorandum dated 23 April 1997, SUBJECT: Department of Defense, Inspector General’s Audit on the Use of Energy Conservation Measures in the Design of New Military Facilities.

4. Definitions: See paragraph 4 of main Quality Management Plan.

5. General.

a. The policy of the CESPD-ET-E is to deliver quality engineering products, on time and within budget to our customers. The districts are responsible for the preparation of engineering products and the quality control necessary to produce those products. CESPD-ET-E is responsible for quality assurance of the engineering process.

b. Quality Management Plans. The districts are responsible to prepare, and keep current, a Quality Management Plan for engineering and design products. The quality management plan provides the general guidance for work managed by the Engineering Division of a district, including the input provided by other functional organizations which support the development of the engineering products. CESPD-ET-E shall evaluate and approve the engineering portions of the district Quality Management Plans.

c. Quality Control Plans. All engineering and design services shall be prepared using a product specific, generic or programmatic quality control plan. The district is responsible for preparing the Quality Control Plan. CESPD-ET-E shall evaluate and approve all district engineering Quality Control Plans and revisions to such.

d. Quality Assurance. CESPD-ET-E is responsible for quality assurance of quality control activities for engineering products prepared by the districts, to include products designed wholly in house or by a combination of contract and in house forces. For that portion of work conducted by contract forces, the district shall be responsible for quality assurance of the contractor's quality control activities and CESPD shall maintain a general oversight of this process.

e. Programmatic/Generic Quality Control Plans: Product specific quality control plans shall be prepared for all products except those of a routine, recurring nature. Cost, complexity, risk and visibility shall be the criteria used to determine if a product specific or programmatic/generic QCP is required. Use of a programmatic/generic QCP shall be approved by CESPD.

f. Funding: Project specific quality control activities performed by Districts shall be funded by the appropriate project. All Division quality assurance activities as well as any quality control activities related to delegated policy compliance review are funded by division funds.

6. District Quality Control Responsibilities

a. District shall prepare, and obtain CESPD approval of, Quality Control Plans for each engineering product.

b. The Quality Control Plan shall be a document supplementing the general quality control activities outlined in the district's Quality Management Plan and describing unique quality control activities for a specific product. As such the length and level of detail should be commensurate with the risk and complexity of the product. The Quality Control Plan shall address (at a minimum) the following:

(1) Name of Project

(2) Description of Product

(3) Name and location of customer

(4) A statement of the quality control plan objective.

(5) A statement of the quality guidelines that will be followed for the technical review.

(6) Members of the product development team.

(7) Members of the Independent Technical Review Team with a statement of the technical qualifications of each member in their respective areas of expertise. (Including Mandatory Centers of Expertise.)

(8) Major Milestones

(9) Unique, sensitive or high visibility items requiring special attention. Include items which require technical or policy clarification, and environmental constraints such as complying with records of decision.

(10) A list of documents to be reviewed by the independent technical review team, and dates of scheduled reviews.

(11) Special interest items such as value engineering, cost controls, contractor evaluation procedures, acquisition strategy, etc.

(12) Partnering or conflict resolution procedures for the stakeholders.

(13) Discussion of constraints on the process, such as staying within budget, on time, and how these constraints may affect the quality of the finished product.

(14) A list of financial resources that shall be allocated to the quality control process, including review, and a breakdown by discipline and by product. The cost estimates for conducting the independent technical review shall be included as a separate line item in the study/product development cost estimate.

(15) The quality control plans for all engineering documents that are supported by NEPA or other environmental documentation shall include an independent technical review to ensure consistency between the environmental documentation and the engineering documents.

c. Certification of Quality Control Plans. The chief of engineering division at the district preparing the quality control plan shall certify that the plan meets the customer's needs and conforms to Corps of Engineers requirements prior to its submission to the South Pacific Division for review and approval.

d. Use of Checklists: Checklists may be used to guide the independent technical review and insure that critical items are not overlooked. Checklists may also be used to simplify the documentation of the independent technical review. The use of checklists in the documentation would not, however, eliminate the requirement to document specific comments.

e. Monitoring/Fostering Technical Competency: Assuring that the team members who perform the work have the knowledge, skills and experience is an essential element of quality control and quality assurance. Quality assurance includes an evaluation of the district's development and maintenance of the technical competency for production and review.

f. Quality control of contractors work: The district shall prepare a quality control plan which discusses the contractor's quality control and it's relationship to the entire project. The contractor's quality control plan shall be approved at the district. The district's quality control plan for the overall engineering product, including quality control of in house activities and it's quality assurance of contractor activities, shall be approved by CESPD.

g. QC Certification and Final Documentation: Proper documentation is a key component of an effective independent technical review process, and is a significant resource for “lessons learned” in the quality control process. Significant decisions must be recorded and the entire process must leave a clear audit trail. Whether a project is submitted to higher headquarters or approved within the district, the Chief of Engineering Division and the District Commander shall certify that the quality control process for that product has been completed and that all identified technical issues have been resolved. This certification and accompanying documentation shall be in accordance with Appendix G and shall be made a part of the official District project files. For products approved at headquarters, copies of the QC certification and documentation shall accompany the product to headquaters. For products either approved at headquarters or within the district, copies of the QC certification and documentation shall be provided to CESPD-ET-E for informational purposes.

h. Civil Works. The following requirements apply to the civil works program:

(1). Independent Technical Review Process: Quality control procedures shall include an independent technical review.

(a) Formation of Independent Technical Review Team (ITRT): The ITRT shall be assigned representatives from disciplines involved in product development, such as plan formulation, economics, environmental, hydrology and hydraulics and coastal engineering, water quality, HTRW, civil design, geotechnical, real estate, project management and other disciplines, as required. Since careful coordination between these disciplines is required, the ITRT must include senior staff with broad expertise. The members of the ITRT must be independent from those who perform the work. Supervisors and workleaders of product development team members shall not be included on the ITRT. Individual ITRT members shall serve in a part time capacity and 50% or less of their work shall be review. If sufficient staff is not available in a district, or if specialized review expertise is required, the review team leader and respective functional chiefs shall supplement the review team with personnel from other districts, other divisions, headquarters, centers of expertise, laboratories, the customer's organization or by contract. Project funds shall be used to pay for the cost of conducting technical reviews. A

district in need of review assistance shall find the expertise needed and negotiate the schedule and cost for the required services. The formation of the review team should consider regional interests, resources, special expertise requirements and unusual complexity.

(b) Seamless Review: To maintain a seamless review concept, products shall receive a technical review before they are integrated into the overall product. A memorandum of record shall be the basis for establishing accountability for the quality of the product and the review. Each member of the ITRT shall prepare a memorandum documenting their comments which shall become part of the ITRT's records. Specific issues raised in the review shall be documented in a comment, response, action required and action taken format. Unresolved differences between the study/product development and ITRT members shall be documented. The Automated Review Management System (ARMS) shall be encouraged for use in all projects. These reviews must be completed prior to major decision points in the process so that the technical results can be relied upon in setting the course for further activities.

(c) Product Review: The QCP shall identify products to be reviewed by the ITRT. These products shall be essentially complete before review is undertaken and the branch and section chiefs shall be responsible for accuracy of the computations through design checks and other internal procedures, prior to conduct of an independent technical review. The products shall be reviewed using an interdisciplinary team approach. The products shall be reviewed for scope, adequate level of detail, compliance with guidelines and policy, consistency, accuracy, and comprehensiveness as outlined in the QCP.

(d) Integration of Prior Reviews: ITRT members shall review their counterpart's portions of the product. The review shall determine whether prior seamless review activities have produced the technical product envisioned during the seamless review. Material reviewed in the seamless review phase shall not be subjected to additional detailed review, except when the products is significantly different from the product previously reviewed; or if it is the judgement of the ITRT that the product quality can be improved within established funding and time limitations.

(e) Interdisciplinary Review: All members of the ITRT shall be expected to raise concerns in other functional areas. These concerns shall be addressed to the ITRT as a whole. The ITRT shall then work through the appropriate ITRT counterparts to resolve the issues/concerns. ITRT meetings shall be open to representatives of CESPD for quality assurance purposes and to the customer. It shall be the responsibility of the ITRT leader to seek resolution of disagreements among ITRT members before referring issues to the product development team members.

(f) Responses to ITRT Comments: The ITRT shall meet with the study/product development team to resolve the raised issues. Along with a description of the scope of the review, all review comments shall be documented in a comment, response, action required and action taken format. In those cases where unresolved disputes between the design team and the ITRT are decided by a functional chief, the review documentation shall provide the basis for the functional chief's decision.

(g) Dispute Resolution: The ITRT leader shall review the documentation to identify any outstanding disagreements between members of the design team and the ITRT. Any disagreements shall be brought to the attention of the appropriate functional chief to facilitate resolution of technical disagreements between design team and ITRT counterparts.

(2) Issue Resolution Conferences: Three types of issue resolution conferences may be held. The first would be at the request of a district to provide technical and policy assistance on major issues, usually on a particular project/product. The second would be held at the request of CESPD, to address major issues raised as a result of quality assurance activities. And, the third would be those mandatory issue resolution conferences required for specific engineering products as required by engineering regulations..

(3) Civil Works Milestones. As part of the Quality Control process, Districts shall follow a milestone system for development of civil works engineering products in the design (post feasibility) phase. Although a formal milestone system is a difficult mandate, guidance is provided below for minimum requirements. Specific milestones objectives shall be tailored to the engineering product and included in the product's Quality Control Plan. A detailed description of each milestone is provided in Enclosure 2 of this subplan.

Milestones for Civil Works projects are significant or important events in the execution of the project. Milestones are important tools for measuring progress along a pre-defined path to the completion of the project. The milestones that are defined below are not a complete list of all activities that must be performed to complete a project. These milestones are considered to be the major accomplishments that must be completed by Engineering Divisions on schedule to help ensure that the overall final product is technically correct and satisfactory to the local sponsor. The numbers shown in parentheses indicate milestones tracked by Programs and Project Management Division and included in the Project Executive Summary Report. Milestones tracked by headquarters as Command Management and Review (CMR) dates are identified by "(CMR)".

(a) Design Memorandum Milestones:

D1 Design Memorandum Initiated (400)
D2 General Design Conference (270)
D3 Technical Review Strategy Session
D4 Quality Control Plan Submitted to CESPD
D5 Value Engineering Study Completed
D6 Submit Intermediate Design Memorandum for Independent Technical Review
D7 Submit Near-Final Design Memorandum for Independent Technical Review
D8 Local Sponsor Review Completed
D9 Quality Control Certification
D10 Design Memorandum Approval (480)

(b) Plans and Specifications Milestones:

P1 Plans and Specifications (P&S) Initiated (500)
P2 Design Coordination Meeting
P3 Technical Review Strategy Session
P4 Quality Control Plan Submitted to CESPD
P5 Submit Intermediate P&S for Independent Technical Review
P6 Submit Near-Final P&S for Independent Technical Review
P7 Biddability, Constructibility and Operability (BCO) Review Conference
P8 Final Local Sponsor Review Meeting
P9 BCO Certification
P10 Quality Control Certification
P11 Plans and Specifications Approval (290)(590) (CMR)

(c) Engineering During Construction Milestones:

C1 Pre-Advertise Contract in Commerce Business Daily

C2 Construction Contract Advertised (950)

C3 Government Estimate

C4 Bid Opening (951)

C5 Engineering Considerations and Instructions to Field Personnel Report

C6 Construction Contract Awarded (960) (CMR)

C7 Final O&M Manual Transferred to Local Sponsor (981)

C8 As-Built Drawings Transferred to Local Sponsor (982)

(4) Hydraulic, Hydrologic and Related Products. Activities such as the development of hydraulic, hydrologic, water quality, water control, sediment, groundwater and related products shall be outlined in the format of a Hydrologic Engineering Management Plan (HEMP), as required by EP 1110-2-9. The HEMP is a quality control measure for ensuring the complete outline of required H&H related activities and their interrelationship with other product development activities that are required in the development of engineering products, and their costs and is consistent with guidelines setforth in ER 1110-2-1150. The HEMP format shall be utilized in the H&H related scoping contained in a study's/project's PSP or PMP, respectively.

i. Military Construction, HTRW, WFO and SFO programs. The following special requirements apply to these programs.

(1) Design review shall be in accordance with ER 1110-345-100 paragraph 9 and ER 1110-1-12 paragraph 6h(3)(a) which require one level of review, and in certain cases, use of mandatory centers of expertise. The Automated Review Management System (ARMS) shall be utilized.

(2) Milestones shall, at a minimum include those activities identified in ER 5-7-1 (FR) such as: design start, design stage, receipt of final design directive, start final design, and final design complete. Additional milestones shall be used to identify document submissions, reviews and approvals.

(3) Engineering products for the OMA, WFO and SFO programs shall have a QCP

developed using this subplan; however due to the wide variety of products and unique requirements imposed by various customers the Quality Control Plan shall be of a scope and nature to meet those requirements imposed by the customers.

(4) Quality management guidelines for HTRW and CDQM programs are provided in Enclosure 3.

(5) Quality control plans shall address the energy conservation measures and energy budget as required by reference h in paragraph 3 of this appendix.

j. Flood Recovery Efforts: See also Construction-Operations Subplan, Enclosure 3, Operations and Readiness Function. Due to its special requirements, Natural Disaster Procedures are classified as a unique function of the Corps as prescribed in the Division organizational guidelines. Quality control of products resulting from flood recovery efforts is prescribed in the existing engineering regulations outlined in the above referenced subplan as well as below:

(1) Code 200 Emergency Operations (Flood Response and Post Flood Response): Due to the emergency nature of the products developed under this authority, quality control of flood response products shall consist of peer or supervisory review, only, prior to implementation. Quality control of post-flood response products shall be accomplished by CESPD until an approved QCP is developed by the district and approved by CESPD.

(2) Code 300 Rehabilitation Assistance: Quality control plans and independent technical review are required for products developed under this authority.

7. Division Quality Assurance Responsibilities

a. Quality Assurance of the Engineering and Design Process. CESPD shall perform quality assurance of the engineering and design process. This shall include evaluation of command management review indicators and other measurements that are be developed.

b. CESPD-ET-E shall evaluate and approve each quality control plan or the use of a programmatic/generic quality control plan for a specific product. As part of the approval the

CESPD shall determine what actions are required by the division staff to perform its quality assurance role.

c. Quality Assurance Activities. CESPD will perform its quality assurance activities using the following techniques:

(1) Those activities identified in paragraph 7 of the main plan.

(2) Oversight of reviews identified in the Quality Management Plans and Quality Control Plans, as well as participation in various activities to ensure the quality control process is working.

(3) Review and approval of District Quality Management Plans and product specific, generic and programmatic Quality Control Plans and revisions to such.

(4) Establish and evaluate technical performance indicators.

(5) Audits of the quality control process.

(6) Quality assurance conferences (QAC's) shall be conducted quarterly with each district's Engineering Division. The purposes of these conferences are to:

(a) Resolve outstanding quality management issues.

(b) Identify new issues and actions required to resolve them.

(c) Discuss non-project specific issues

(d) Keep senior management informed on quality management issues

(e) Assure communication with all team members responsible for product development

ENCLOSURE 1

QUALITY MANAGEMENT GUIDELINES FOR

DAM SAFETY PROGRAM

1. Purpose: This enclosure provides specific information on the application of QA/QC to theSouth Pacific Division dam safety program and all documents related to that program. Although Engineering Division has primary responsibility for this program, Planning Division and Construction-Operations Division also play a significant role.

2. Reference:

a. ER 1110-1-8, Required Visits to Construction Sites by Design Personnel, 23 May 1980, and CESPD Supplement 1, 10 March 1981.

b. ER 1110- 1 - 1 80 1, Construction Foundation Reports, 15 December 1981.

c. ER 1110-2-100, Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures, 15 February 1995.

d. ER 1110-2-110, Instrumentation for Safety Evaluation of Civil Works Projects, 8 July 1995.

e. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 March 1994.

f. ER 1110-2-1155, Dam Safety Assurance Program, 31 July 1995.

g. ER 11 10-2-1156, Dam Safety - Organization, Responsibilities and Activities, 31 July 1992.

h. ER 1110-2-1802, Reporting Earthquake Effects, 25 July 1979, and CESPD Supplement 1, 31 March 1994.

i. ER 1110-2-1901, Embankment Criteria and Performance Report, 15 June 1994.

j. CESPD R 1110-1-2, Engineering Considerations and Instructions to Field Personnel

k. CESPD R 1110-1-7, lnteragency Cooperation between the U.S. Army Corps of Engineers and State Dam Safety Regulatory Agencies, 13 May 1994.

1. CECW-A Memorandum No. 2, Implementation of New Technical and Policy Review Procedures, 14 April 1995.

m. CECW-EP Memorandum, Engineering, Design and Dam Safety Guidance, 31 May 1995.

n. ER 1110-2-101, Reporting Evidence of Distress in Civil Works Structures, 31 January 1993.

3. Dam Safety Quality Management Plan: Each district shall prepare a Quality Management Plan for Dam Safety which will be part of the overall district QMP submitted annually to CESPD-ET for review and approval. The QMP for Dam Safety will describe district procedures for assuring the quality of products unique to the dam safety program, such as Periodic Inspection reports, Dam Safety Assurance Program reports, Construction Foundation reports, Embankment Criteria and Performance reports, and Istrumentation reports.

4. Dam Safety Committee: The MSC Dam Safety Committee (DSC) is responsible for the coordination and implementation of the dam safety program within the MSC, as set forth in reference g. The Director of Engineering and Technical Services is the MSC Dam Safety Officer and chairman of the DSC. The DSC will conduct a minimum of two meetings per year, or as needed. In addition, it is the policy within South Pacific Division for the MSC Dam Safety Committee to meet annually with the district Dam Safety Committees. The QA responsibilities of the MSC Dam Safety Committee include:

a. Ensure that organizational staffing of qualified personnel is sufficient and that th safety program is established and realistically funded.

b. Establish dam safety related work priorities within the MSC.

c. Conduct QA activities for all features of major civil works projects.

d. Monitor activities related to performance monitoring and evaluations of all dams.

e. Monitor status of Emergency Action Plans.

f. Monitor the public awareness program and coordinate with state agencies as required.

g. Ensure that adequate dam safety training is being conducted.

h. Ensure that accurate data are submitted for the inventory of Corps dams.

i. Plan, monitor, and conduct dam safety exercises.

5. Dam Safety During the Planning Process: The MSC will conduct QA reviews of all planning documents for projects that include, or might include, dams. These documents include reconnaissance reports and feasibility reports. The siting of dams is of particular concern during this process, in relationship to earthquake faults and foundation conditions. See Appendix C, Planning Subplan, for details of this review process.

6. Dam Safety During the Engineering and Design Process: The MSC will conduct QA reviews of all engineering and design documents related to dam projects. These documents are described in reference e, and include DMs, FDMs, plans, specificiation, cost estimates and "Engineering Considerations and Instructions to Field Personnel" (reference j). See Appendix D, Engineering Subplan, for details of this review process.

7. Dam Safety During Construction Process: The MSC will conduct QA reviews of the construction process on all dam projects. This will require occasional visits to the construction site by the MSC Dam Safety Committee to assure that the dam under construction is being

adequately inspected and tested, that the construction is in accordance with the plans and specifications, and that good construction records are being kept. Reference a provides guidelines on appropriate times to visit the construction site. See Appendix F, Construction Subplan, for details.

8. Dam Safety After The Construction Process: The safety of a dam after construction depends on periodic inspections and evaluations as described in reference c. The scheduling of these inspections, the inspections themselves, and the inspection reports are all the responsibility of the Districts. The MSC, to satisfy its QA mission, will occasionally participate in the inspections. In accordance with reference c, paragraph 5c, as modified by reference m, districts will perform technical review of the inspection reports and the MSC will approve the reports. An ITRT review will not be required for periodic inspection reports, but the reports should receive a thorough internal review prior to being forwarded to the MSC for approval.

9. Dam Foundation Reports and Embankment Reports: These reports are prepared by field personnel during construction and shortly after completion of the dam. They are extremely important documents for evaluating the performance of the dam, particularly in addressing any future questions that might arise regarding the safety of the structure. References b and i indicate that the MSC has approval authority for these documents, however subsequent HQUSACE guidance is that technical review will only be conducted at the district level (reference 1). These documents, therefore, will be treated in a manner similar to planning and design documents, so a Quality Control Plan (QCP) will be developed for each, and reviewed and approved by the MSC. An independent technical review team (ITRT) will be established by the District to review the work.

10. Instrumentation Reports: Reference d requires that instrumentation data, along with appropriate written evaluations, be consolidated yearly and sent to the MSC for review. These data and evaluations should receive a thorough independent technical review prior to being sent to the MSC.

11. Dam Safety Assurance Program (DSAP) Reports: Dam Safety Assurance Program (DSAP) reports are reviewed and approved by HQUSACE in accordance with reference f. The MSC will review and approve the QCPs for these reports to assure that the design team and the ITRT are appropriately staffed by qualified personnel. The MSC will also review selected documents, and attend In Progress Reviews and Technical Review Conferences as part of its QA mission. The MSC should receive information copies of all relevant documents.

12. Reporting Earthquake Effects: The districts Operations Branch is responsible for the immediate assessment of earthquake damage and notifying the Chief of Engineering Division as required in reference h. The Engineering Division will formulate an inspection program, conduct post-earthquake inspections, process and analyze instrumentation data, evaluate the condition of structures, and prepare inspection reports. The district's dam safety QMP will set forth procedures to assure that high quality post-earthquake assessments, inspections, evaluations and reports are obtained.

13. Reporting Evidence of Distress: Evidence of distress at a dam project will be immediately reported to the District Office and up through channels in accordance with reference n. If follow-up engineering evaluation reports are necessary or if remedial construction is required, reports and plans should be reviewed by an ITRT.

14. Cooperation with Dam Safety Agencies: The Corps of Engineers and South Pacific Division have a policy of cooperating fully with state dam safety agencies (reference k). These state agencies have a QA mission similar to the MSC, with the purpose of assuring that dams constructed within their state are safe. They review dam designs and inspect dams under construction. A dam may not be put into operation until it is certified as safe by the state dam safety agency. In California, the MSC meets regularly with the California Division of Safety of Dams, districts and local sponsors to discuss the safety aspects of dams being planned, designed and constructed by the Corps in that state. The MSC has been involved to a lesser degree with state dam safety agencies in Utah and Nevada.

ENCLOSURE 2

ENGINEERING DIVISION MILESTONES FOR CIVIL WORKS PROJECTS

1. Purpose. The purpose of this enclosure is to establish a system of major milestones that must be utilized by Engineering Divisions for Civil Works projects in the Pre-Construction Engineering and Design (PED) phase and the Construction General (CG) phase so that Engineering Division supervisors and their staffs are aware of the milestones and their importance.

2. Establishing and Monitoring Milestone Schedules. Major milestones shall be established for all Civil Works projects in the PED and CG phases. Specific milestone objectives shall be tailored to the product and included in the product's Quality Control Plan. The Engineering Manager is responsible for establishing milestone dates in coordination with the Project Manager, the Project Engineer and the Product Development Team and for obtaining concurrence of Engineering Division branch chiefs with the dates. Budget constraints and sponsor's desires provided by the Project Manager shall be reflected in the milestone schedule.

4. Definitions of the Engineering Division Milestones. A brief discussion of each of the milestones and the dates to be used as the dates the milestones are achieved are included in the paragraphs below. The limited descriptions provided do not relieve designers and reviewers of the responsibilty for complying with all fundamental guidance found in other HQUSACE, CESPD and District ER's in carrying out the activities addressed in these descriptions.

a. D1 Design Memorandum Initiated (400). The results of required design studies and technical analyses not completed during the feasibility stage are presented in a design memorandum (DM). The date that PPMD authorizes and funds any element of Engineering Division to begin work on the DM is the date of the completion of this milestone.

b. D2 General Design Conference Session. The purpose of the General Design Conference (GDC) is to discuss the current project plan, project background, objectives, schedules, costs, design options, major issues, problem areas, and the type of documents which must be prepared and the level of detail in those documents. The GDC shall be held early in the design stage. Major topics of discussion will include a description of the authorized plan with

appropriate graphics, issues and problem areas, any recommended alternative analyses identified at the time, a list of documents to be prepared, and descriptions of the technical studies and analyses to be accomplished. A site visit may be included as part of the design conference. CESPD and HQUSACE may elect to participate in this activity. The D2 milestone will be achieved on the date that the GDC is successfully completed.

c. D3 Technical Review Strategy Session . A Technical Review Strategy Session (TRSS) will be held in accordance with the main body of this QMP. The TRSS may be held concurrently with or shortly after the GDC. The draft QCP for the DM shall be discussed and finalizied. For multiple feature projects, an additional TRSS shall be held to address each required DM and associated plans and specifications. This milestone is achieved upon completion of the memorandum documenting the meeting.

d. D4 Quality Control Plan Submitted to CESPD. A Quality Control Plan (QCP) is required for each project as part of the technical review and quality management program of the District. For multiple feature projects, more than one QCP may be prepared addressing the various elements of the project. The milestone will be achieved on the date that the QCP transmittal letter to CESPD is signed by the Chief, Engineering Division.

e. D5 Value Engineering Study Completed. The Corps' current policy requires that value engineering (VE) studies be performed on all USACE projects or project elements with a programmed cost of $2,000,000 or more unless a determination can be made that a study would not be cost effective. A VE study shall be performed on the earliest document available that satisfies the functional requirements of the project or project element and includes a comprehensive (M-CACES) cost estimate. The milestone is achieved on the date that the VE study is approved by the Chief of Engineering Division.

f. D6 Submit Draft DM for Intermediate Independent Technical Review. A draft DM shall be submitted to the ITRT Leader for review by the ITRT. Each technical element of the Product Development Team shall also provide a synopsis of remaining work. This milestone will be completed when the ITRT Leader receives the draft documentation. This milestone may be omitted if the omission is addressed in the QCP or with written approval by the Chief, Engineering Division.

g. D7 Submit Near-Final DM for Independent Technical Review. Independent technical review of the DM shall be conducted in accordance with guidance in the main body of this QMP.

The DM shall be essentially complete before the Near-Final Document Review is undertaken. The document shall be reviewed for scope, adequate level of detail, compliance with guidelines and policy, consistency, accuracy, and comprehensiveness. This milestone is met when the ITRT Leader receives the draft documentation.

h. D8 Local Sponsor Review Completed. At the same time that the Independent Technical Review Team begins their review of the "near-final" materials, a copy of those materials shall be sent by the design team's Project Engineer to the local sponsor for formal review and comment. The local sponsor is expected to provide formal written comments on the DM. Each one of the local sponsor's comments will be answered. The date of the letter signed by the Chief of Engineering Division that transmits the responses to the local sponsor's comments is the date of achievement of this milestone.

I. D9 Quality Control Certification . When the Near-Final review has been completed, review comments have been documented, and all comments and issues have been resolved, the documentation of the independent technical review and other quality control processes prescribed in the QCP shall be made a part of the official project files. The Chief of Engineering Division and the District Commander shall certify that the quality control process for the DM has been completed and that all identified technical issues have been resolved. This certification shall be in accordance with the guidance provided in the main body of this QMP. The date of the certification memorandum signed by the District Commander is the milestone completion date.

j. D10 Design Memorandum Approval (480). After the Design Memorandum has been finalized, a DM approval memorandum shalll be signed by the Chief of Engineering Division. The date that this memorandum is signed is the date that this milestone has been achieved.

k. P1 Plans and Specifications Initiated (500). P&S shall be prepared in accordance with established HQUSACE and CESPD guidance. They should contain all the necessary information required to bid and construct the plan detailed in the Feasibility Report engineering appendix or in the Design Memorandum. The date that PPMD authorizes and funds any element of Engineering Division to begin work on the P&S is the date of the completion of this milestone.

l. P2 Design Coordination Meeting. A design coordination meeting will be conducted at the initiation of plans and specifications preparation. The local sponsor shall be invited to send representatives to this meeting. The design team and Architect-Engineer (A-E) staff, if applicable, will also attend. The milestone will be achieved upon successful completion of the meeting.

m. P3 Technical Review Strategy Session Meeting). A Technical Review Strategy Session (TRSS) will be held in accordance with the guidance provided in the main body of this QMP. The draft QCP shall be discussed and finalized. This milestone is achieved upon completion of the memorandum documenting the meeting.

n. P4 Quality Control Plan Submitted to CESPD. A Quality Control Plan (QCP) is required for each set of P&S as part of the technical review and quality management program of the District. If the QCP for the DM addressed the plans and specifications, a separate QCP will not be required and the milestone will have been met. If the DM QCP did not address the plans and specifications, a separate QCP shall be required. If the DM QCP addressed the plans and specifications, but conditions have changed so that the DM QCP no longer accurately reflects the QCP for the plans and specifications, a supplement to the DM QCP shall be prepared to reflect current conditons. The milestone will be achieved on the date that the letter is signed by the Chief, Engineering Division transmitting the QCP to CESPD-ET-E.

o. P5 Submit Draft Plans and Specifications (P&S) for Intermediate Independent Technical Review. Draft P&S containing the material established in the TRSS milestone (P3) memorandum shall be submitted to the ITRT Leader for review by the ITRT. Each technical element of the Product Development Team shall also provide a brief synopsis of remaining work. This milestone will be completed when the ITRT Leader receives the draft documentation. The Intermediate Review may be omitted if the omission is addressed in the QCP or with written approval by the Chief, Engineering Division.

p. P6 Submit Near-Final P&S for Independent Technical Review . The P&S will be essentially complete before the Near-Final Document review is undertaken. The products shall be reviewed for scope, adequate level of detail, compliance with guidelines and policy, consistency, accuracy, and comprehensiveness . This milestone will be completed when the ITRT Leader receives the draft documentation.

q. P7 Biddability, Constructibility, Operability (BCO) Review Conference. Upon completion of the independent technical review of the Near-Final P&S by the ITRT and the BCO review by Construction-Operations Division and Planning Division, a BCO conference shall be held to discuss and resolve the comments in accordance with ER 415-1-11. This milestone is completed when the meeting has been held.

r. P8 Final Local Sponsor Review Meeting. Local sponsor involvement is encouraged during the preparation of P&S. After formal local sponsor review comments have been received and addressed, a meeting will be held with the local sponsor to discuss the review comments to ensure that there is a complete understanding of the comments and that the appropriate corrections and modifications have been or will be made. If ongoing coordination during the design has resulted in agreement on local sponsor comments, this meeting may not be necessary and may be canceled at the request of the local sponsor. This milestone is achieved upon successful completion of this meeting.

s. P9 BCO Review Certification (580). Upon completion of the BCO backcheck, a certification will be signed by the Chief of Engineering Division and the Chief of Construction-Operations Division and sent to the Chief of Contracting Division. The date of certification by the Chief, Construction-Operations Division is the date of achievement of this milestone.

t. P10 Quality Control Certification. When the Near-Final Document Review has been completed, final review comments have been documented, and all comments and issues have been resolved, the documentation of the independent technical review and other quality control processes prescribed in the QCP shall be made a part of the official project files. The Chief of Engineering Division and the District Commander shall certify that the quality control process for the P&S has been completed and that all identified technical issues have been resolved. This certification shall be in accordance with the main body of this QMP. The date of the certification memorandum signed by the District Commander is the milestone completion date.

u. P11 Plans and Specifications Approval (590) (CMR). After the P&S have been finalized and the District Commander has signed the certification of quality control, the cover sheet of the plans will be signed by the Chief of Engineering Division certifying approval of the entire set of plans and specifications. The date that the plans are signed is the date that this milestone has been achieved.

v. C1 Pre-Advertise Contract in Commerce Business Daily. An announcement that an Invitation for Bids (IFB) for a construction contract is about to be issued must be advertised in the Commerce Business Daily newspaper 15 calendar days prior to issuing the IFB. The FAR requires that an additional 10 calendar days be allowed for the mailing and processing of the announcement for a minimum total of 25 calendar days to complete the announcement. Typically an additional 5 days is programmed by the District for a total of 30 days for the process. This milestone is met on the day that the announcement is mailed to the CBD.

w. C2 Construction Contract Advertised (950). This milestone is met on the day that the initial complete set of plans and specifications is first made available to prospective bidders.

x. C3 Government Estimate. The Government estimate is based on final plans and specifications and is the formal, approved construction cost estimate prepared to support contract award. A Government estimate is required for all contracts, or modifications exceeding $25,000 (FAR 36.203 and ref 1.g.). When the Government Estimate has been approved by the Chief of Engineering Division (ref 1.g., Appendix C), this milestone has been achieved.

y. C4 Bid Opening (951). IFB's for construction contracts must be advertised for no less than 30 days. Sealed bids are opened by the Contracting Division. Bid opening is held no sooner than 10 days after all significant amendments to the Plans and Specifications have been issued. The day that the bids are opened is the day that this milestone is achieved.

z. C5 Engineering Considerations and Instructions to Field Personnel Report. In preparation for the beginning of each major construction contract, the Project Engineer will prepare a report outlining the engineering considerations and providing instructions for field personnel to aid them in the supervision and inspection of the contract. The requirement for and a discussion of the contents of the report is contained in section 11.o. of ER 1110-2-250. A suggested outline of such a report for a dam is presented in Appendix E of ER 1110-2-1150. The report will normally be provided to the Resident Engineer well in advance of award. The milestone is completed on the date that the transmittal letter is signed by the Chief of Engineering Division.

aa. C6 Construction Contract Awarded (960)(CMR). Contracts are awarded by the Contracting Division after analysis and recommendations from the Construction-Operations Division and Programs and Project Management Division. Engineering Division is sometimes consulted on contract awards, especially if there is a large difference between the low bid price and the Government Estimate. This milestone is very important to Engineering Division because it is a CMR indicator for Engineering Division. The date of this milestone is the date of the letter awarding the contract.

bb. C7 Final O&M Manual Transferred to Local Sponsor (981). The O&M Manual and the Water Control Manual, if applicable, are the responsibility of the Engineering Division. The manuals will be completed and fully coordinated with the local sponsor during the construction phase of the project. In addition, if required by the site conditions, a HTRW documentation report will be prepared during construction and will serve as a permanent record of all HTRW-related activities at the project. A copy of this report will also be provided to the local sponsor.

This milestone is met when the final version of the required manuals and HTRW documentation report have been sent to the sponsor.

cc. C8 As-Built Drawings Transferred to Local Sponsor (982). As-built drawings will be prepared and maintained by Construction-Operations Division. Using a set of marked-up drawings prepared by the Resident Engineer and the contractor, the Project Engineer will ensure the completion of as-built drawings. Copy of as-built drawings shall be forwarded to Engineering Divison. This milestone is met when the as-built drawings have been sent to the sponsor.

ENCLOSURE 3
QUALITY MANAGEMENT GUIDELINES
FOR
HAZARDOUS TOXIC RADIOACTIVE WASTE (HTRW) PROGRAMS
AND
CHEMICAL DATA QUALITY MANAGEMENT (CDQM)

1. Purpose: Provide guidance on quality management of CESPD's and its Districts HTRW programs and CDQM. HQUSACE guidance on this subject is in transition. For 1997 this document focuses on:

a. CEMP-RT Memorandum, Subject: Technical roles and Responsibilities for the USACE Hazardous, Toxic, and Radioactive Waste (HTRW) Program, dated 24 July 1996 mandates that the HTRW quality assurance (QA) role of the major Subordinate Command (MSC) is to assure that the established QA processes are implemented. This Memorandum itemizes the roles and responsibilities of the functionaries in the HTRW program. Quality Umbrella Assurance Diagnostics (QUADs) protocol presented during the 2nd Annual HTRW QA Workshop in March 1997 provided additional guidance on MSC's QA roles and responsibilities.

b. Engineering Regulation 1110-1-263, Appendix C 1, states that the primary purpose of Chemical Data Quality Management (CDQM) for HTRW remedial activities is to ensure that all chemistry data are of known quality and can withstand scientific and legal challenge relative to the use for which the data are obtained.

2. Applicability: This guidance applies to HTRW programs within CESPD and its districts. HTRW programs include CERCLA, RCRA, WFO and SFO.

3. References:

a. CEMP-RT, Memorandum, dated 24 July 1996, subject: Technical Roles and

Responsibilities for USACE hazardous, Toxic, and Radioactive Waste (HTRW) Program.

b. ER 1110-1-8100, Engineering & Design Laboratory Investigation and Testing, 12/30/1994.

c. ER 110-1-263, Engineering and Design, Chemical data Quality Management for HTRW Remedial Activities. 1 April 1996.

d. EM 200-1-1, Environmental Quality, Validation of Analytical Chemistry Laboratories, 1/7/1994.

e. EM 200-1-2, Guidance for HTRW Data Quality Design, 7/31/96

f. EM 200-1-3, Environmental Quality, Requirements for the Preparation of Sampling and Analysis Plans, 1/9/1994

g. EM 200-1-4, Environmental Quality, Risk Assessment Handbook Human Health Evaluation, Volume 1: Human Health Evaluation, 6/30/96.

h. EM 200-1-6, Environmental Quality, Engineering and Design, Chemical Data Quality Assurance, Guidance for Hazardous, Toxic, and Radioactive Waste (HTRW) Sites. 3/31/97.

i. CEMRO-HX-S Memorandum, dated 4 October 1996, subject: HTRW-CX Technical Review Process.

4. CESPD's HTRW and CDQM QA Oversight Activities: CESPD shall utilize a modified version of CEMP-RT's HTRW Quality Umbrella Assurance Diagnostics (QUADs) program to execute its HTRW and CDQM QA oversight activities. The hierarchial components of QUADs are :

a. Quality Assurance Manager (QAM) - CEMP-RT

b. Quality Control Verification (QCV) - Chief, CEMP-RT

c. Technical Liaison Manager (TLM) - HTRW-CX

d. Technical Branch Chiefs - HTRW-CX

e. Quality Control Verification (QCV) - Director, HTRW-CX
- Chief, HTRW-HX-S

f. Quality Assurance Officer (QAO) - CESPD

g. HTRW-Design Districts

h. Non-HTRW-Design Districts.

QA responsibilities and logistics of the QUADs members are specified in the Table below.

TABLE 1

RESPONSIBILITIES OF QUAD MEMBERS

QUADs Components	Function	Funding Source
Quality Assurance Manager (QAM) - CEMP-RT	- Participate in each QA oversight visit - Monitor the QA Process nation-wide - Provide perodic updates on QUADs activities to USACE senior management - Interphase with HQ USEAP on regulatory QA requirements.	CEMP
Quality Control Verification (QCV) - Chief, CEMP-RT	- Verification of the QUADs process via oversight visit(s) at the selected MSC.	CEMP
Technical Liaison Manager (TLM) - HTRW-CX	- HTRW-CX serves as the corrdinating agency for the QA oversight visits. - TLM assigned to support the Design Districts(s) serves as the project officer for each Division QUADs oversight visit.	HTRW-CX

QUADs Components	Function	Funding Source
	- TLM is responsible for coordination of the QUADs process with the MSC QA Officer. - TLM will select the projects to be observed and lead the oversight visit & prepare a report of the QA oversight findings. - Ideally the TLM will select projects (Category B) from those which have already undergone technical review by the HTRW-CX staff.	
Technical Branch Chiefs - HTRW-CX	- Technical branch chiefs assigned to HTRW-CX will develop a formal checklist of items in the technical arenas considered critical to the success of an project whcih will be used to record evaluation from reviewed projects selected by the TLM for use in the oversight process (Example see Attachment II).	HTRW-CX
Quality Control Verification (QCV) - Director, HTRW-CX Chief, HTRW-HX-S	- Verfication of the QUADs process at the selected oversight visits.	HTRW-CX
Quality Assurance Officer (QAO) - CESPD	- Establish, *collect and review annually* HTRW Quality Management Plans to insure product quality & maintain QA of subordinate HTRW design districts. - Keep seniorCESPD management informed about QA isues within the division. - Provide an overview of CESPD's QA program and significant findings from past year at the annual QA Workshop. - Coordinate oversight activities with subordinate HTRW Design and non-HTRW Districts. - Coordinate with CX, Districts during QAM, QCV QA oversight visit at Division. - Monitors any corrective actions required.	CESPD
HTRW-Design Districts	- Perform QA on HTRW projects assigned to geographically supported non-HTRW Design District(s). - Response to requests from the CESPD QA Officer. - *Prepare and update annually the District HTRW Quality management Plan.* *-Prepare for and present CDQM data on selected*	CEMP / CESPD Design District

QUADs Components	Function	Funding Source
	CEMP at tri-annual CDQM audit. *-Prepare for and present Innovative Technology data to CEMP at bi-annual Innovative Technology audit.*	
Non-HTRW-Design Districts	- Response to requests from HTRW Design District.	District

5. Strategy for 1997: During FY97, CESPD's QUADs oversight visits at districts will focus on the Data Quality Objective process and Technical Project Planning for HTRW Data Quality Design. An example of a Quality Assurance Checklist on Technical Project Planning and Data QualityObjectives is given in Table 2. During this first year of implementation, the QA oversight process will be diagnostic in nature. Additional Quality Assurance Check Lists for different disciplines in the HTRW program are being evaluated for subsequent QA oversight visits.

6. Division QA Activities on Chemical Data Quality Management:

a. CESPD personnel or TLM-CX may participate in Counterpart Consultation/In-Process Conferences with the HTRW Design District to facilitate resolution of technical issues with HTRW-CX and HTRW policy issues with HQUSACE.

b. Conduct technical evaluation of technology transfer and innovation based on the criteria of:

(1) Regulatory requirement - Essential

(2) Added value - Important

(3) Nice to have

c. Participation of an individual from CESPD on a product's technical review team would compromise that individual's ability to perform QA on that product and is prohibited.

d. Identify, inventory and monitoring the submission of Category B project documents required for HTRW-CX review per reference 3.a. Category B projects include the National Priority List (NPL), Base Realignment and Closure (BRAC) projects in the RI/FS phase, and those projects using innovative technology and/or the construction cost is greater than $5m in the RD/RAC phase.

6. Definitions and Acronyms: Acronyms and definitions in HTRW documents are, at times, equivocal and somewhat confusing. Enclosures 4 and 5 contain definitions and acronyms, respectively extracted from EM 200-1-6, Environmental Quality, Engineering and Design, Chemical Data Quality Assurance, Guidance for Hazardous, Toxic, and Radioactive Waste (HTRW) Site, for consultation.

TABLE 2

QUALITY ASSURANCE CHECKLIST (HTRW)

Draft Final dated June 1997
Heidi Novonty - HTRW CX
402-697-2626

QUALITY ASSURANCE CHECKLIST

EM 200-1-2 Technical Project Planning Guidance
for
HTRW Data Quality Design

Yes	No	ITEM	Success Stories
		Does the District have copies of EM 200-1-2 readily available?	
		Do scopes of work and workplans reference EM 200-1-2?	
		Has the District's Technical Planning Team been documented, including changes, since project conception? (Para 2-7, pg 2-15 to 2-18) • Decision Makers (pg 2-14): Project Manager Technical Manager Customer POC Regulator POC • Data Users (pg 2-15): Compliance Remedy Responsibility Risk • Data Implementors (pg 2-16):	

QUALITY ASSURANCE CHECKLIST

EM 200-1-2 Technical Project Planning Guidance
for
HTRW Data Quality Design

Yes	No	ITEM	Success Stories
		Analysis Sampling • Other Technical Specialists (pg 2-16)	
		Have Customer's goals been documented and provided to the technical planning team? (Pg 2-9) • Customer's concept of Site closeout including use of site and regulatory status of site • Customer's desired time frames including short and long terms goals • Customer's budget for the site	
		Has the Acquisition strategy for project planning and project execution been documented? • Project planning strategy: In-house, Contractor, or combination (pg 2-11) • Project execution strategy: In-house or contracted	
		Has Site Strategy been documented (captured) (Para 2-8 to 2-16, pg 2-18 to 2-52)? • Primary and Secondary Regulatory Programs (pg 2-19)	

QUALITY ASSURANCE CHECKLIST

EM 200-1-2 Technical Project Planning Guidance
for
HTRW Data Quality Design

Yes	No	ITEM	Success Stories
		• Future Use of Site (pg 2-30) • Scope and Meaning of Site Closeout (pg 2-31) • All Probable Remedies (pg 2-32) • Executable Phases Identified including Project Decision Statements (pg 2-33)	
		Has Project Strategy been documented? (Para 2-15 to 2-18, pg 2-48 to 2-56) • Site Constraints & Dependencies Identified (pg 2-49) • Options for Achieving Site Closeout Considered (pg 2-52) • Executable Phase Identified and Project Decision Statements Selected (pg 2-55)	
		Have Data Needs been documented? (Para 3-3 to 3-9, pg 3-5 to 3-61) • Data Need • Data Use • Data Quality • Concentration of Interest • Area of Interest/Sample Location	
		Have sampling and analysis methods been documented? (Para	

QUALITY ASSURANCE CHECKLIST

EM 200-1-2 Technical Project Planning Guidance
for
HTRW Data Quality Design

Yes	No	ITEM	Success Stories
		4-6c, pg 4-21 to 4-25; Para 4-8, pg 4-29 and 4-30) • Number of Samples • Where to Collect Samples • Sample Collection Methods • Sample Analysis Methods	
		Have Data Collection Options been documented? (Para 4-7, pg 4-26, TABLE 4-3, pg 4-28) • Basic • Optimum • Comprehensive	
		Has Data Collection Program been documented after consultation with the Customer?	
		Have Data Quality Objectives been developed for site information and environmental data? (Para 5-7, pg 5-8) • Data Needed • Intended Data Use • Means to Achieve Acceptable Data Quality to Satisfy the PDs	

ENCLOSURE 4

DEFINITIONS USED IN
HTRW & CDQM PROJECTS

Accuracy. The closeness of agreement between the measured value and the true value. Calculated as percent recovery.

Activity. An all-inclusive term describing a specific set of operations or related tasks to be performed, either serially or in parallel, that in total result in a product or service.

Audit. A independent, systematic examination to determine whether activities comply with planned arrangements, whether the arrangements are implemented effectively, and whether the results are suitable to achieve objectives.

Bias. The systemic or persistent distortion of a measurement process which causes errors in one direction.

Chain of custody. An unbroken trail of accountability that ensures the physical security of samples, data, and records.

Characteristic. Any property or attribute of a datum, item, process, or service that is distinct, describable and/or measurable.

Comparability. A qualitative characteristic which defines the extent to which a chemical parameter measurement is consistent with, and may be compared to, values from other sampling events.

Completeness. A quantitative evaluation of what percent of the chemical measurements met the project data quality objectives.

Conformance. An affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation.

Corrective action. Measures taken to rectify conditions adverse to quality and, where possible, to preclude their recurrence.

Data Assessment. The all-inclusive process used to measure the effectiveness of a particular data gathering activity. This process may be comprised of data verification, data review, data evaluation, and data validation.

Data Evaluation. The process of data assessment done by the district project chemist to produce a chemical data quality assessment report.

Data Review. The process of data assessment performed by the USACE HTRW chemistry laboratory to produce the chemical quality assurance report.

Data Validation. The process of data assessment in accordance with USEPA regional or national functional guidelines, or USACE guidelines, or project-specific guidelines.

Data Verification. The process for evaluating the completeness, correctness, consistency, and compliance of a data package against a standard or contract.

Data of known quality. Data that have the qualitative and quantitative components associated with their derivation documented appropriately for their intended use, and such documentation is verifiable and defensible.

Data quality assessment. A statistical and scientific evaluation of the data set to determine the validity and performance of the data collection design and statistical test, and the adequacy of the data set for its intended use.

Data quality objectives. Qualitative and quantitative statements that clarify technical and quality objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed for support decisions.

Data usability review. The process of ensuring or determining whether the quality of the data produced meets the intended use of the data.

Deficiency. An unauthorized deviation from approved procedures or practices, or a defect in an item.

Definitive Data. Data that are generated using rigorous, analyte-specific analytical methods where analyte identifications and quantitations are confirmed and QA/QC requirements are satisfied.

Design review. A documented evaluation by a team, including personnel such as the responsible designers, the client for the work or product being designed, and a QA representative, but other than the original designers, to determine if a proposed design will meet the established design criteria and perform as expected when implemented.

Document. Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results.

Duplicate sample. A sample replicate collected as near as possible at an identical time and place as an original sample. Sometimes used in place of a split sample for volatile analytes, or to assess overall sample matrix homogeneity (see also split sample).

Entity. Something which can be individually described and considered, such as a process, product, item, organization, or combination thereof.

Feedback. Communication of data quality performance to sources which can take appropriate action.

Finding. An assessment conclusion that identifies a condition having a significant effect on an item or activity. An assessment finding may be positive or negative, and is normally accompanied by specific examples of the observed condition.

HTRW activities. Activities undertaken for the U.S. EPA's Superfund Program, the Defense Environmental Restoration Program (DERP), including Formerly Used Defense Sites (FUDS) and Installation Restoration Program (IRP) sites at active DOD facilities, HTRW actions associated with Civil Works projects, and any other mission or non-mission work performed for others at HTRW sites. Such activities include, but are not limited to, Preliminary Assessments/Site Inspections (PA/SI), Remedial Investigations (RI), Feasibility Studies (FS), Engineering Evaluation/Cost Analyses (EE/CA), RCRA Facility Investigations/Corrective Measures Studies/Corrective Measures Implementation/Closure Plans/Part B Permits, or any other investigations, design activities, or remedial construction at known, suspected, or potential HTRW sites. HTRW activities also include those conducted at petroleum tank sites and construction sites containing HTRW.

HTRW chemistry laboratory. A USACE laboratory which has been designated by CEMP-RT and validated by the HTRW CX to provide analytical services to the HTRW program.

Independent assessment. An assessment performed by a qualified individual, group, or organization that is not a part of the organization directly performing and accountable for the work being assessed.

Inspection. Examination or measurement of an item or activity to verify conformance to specific requirements.

Item. An all-inclusive term used in place of the following: appurtenance, facility, sample, assembly, component, equipment, material, module, part, product, structure, subassembly, subsystem, system, unit, documented concepts, or data.

Management. Those individuals directly responsible and accountable for planning, implementing, and assessing work.

Management system. A structured non-technical system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for conducting work and for producing items and services.

Method. A body of procedures and techniques for performing an activity systematically presented in the order in which they are to be executed.

Nonconformance. A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate; nonfulfillment of a specified requirement.

Observation. An assessment conclusion that identifies either a positive or negative condition.

Ordnance and Explosives (OE) activities. All work undertaken to manage or eliminate the immediate risks associated with OE related material. OE activities are usually response activities undertaken for DERP, FUDS, or Base Realignment and Closure (BRAC) projects. OE responses include site inventories, preliminary assessments, site investigations, public involvement, engineering estimates, cost analyses, action memoranda, removal designs, removals (both time critical & non-time critical), and clean-up of residual OE.

Precision. A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions, expressed generally in terms of standard deviation.

Primary laboratory. Laboratory that analyzes the majority of the project samples.

Procedure. A specified way to perform an activity.

Process. A set of interrelated resources and activities which transforms inputs into outputs.

Project. An organized set of activities within a program.

Project Manager. The leader of the project team, responsible for managing the project parameters (budget, cost, safety, schedule, scope and quality), as well as interfacing with those involved in the project process (customers, functional elements, government, and non-government entities).

Quality. The totality of features and characteristics of a product or service that bear on its ability to meet the stated or implied needs and expectations of the user.

Quality assurance. An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement that measures the degree of excellence of environmental data and communicates the information to a data generator or data user in a convincing manner.

Quality assurance laboratory. The USACE HTRW chemistry laboratory, or its subcontracted agent that is responsible for analysis of the project QA samples.

Quality assurance sample. A sample collected to monitor the quality of sampling operations. This type of sample is analyzed by the quality assurance laboratory and typically includes split samples, duplicate samples, and various types of blank samples.

Quality control. The overall system of technical activities that monitors the degree of excellence of environmental data so that the stated requirements of defined standards are achieved.

Quality control sample. A sample collected to monitor and control the quality of sampling operations. This type of sample is analyzed by the primary laboratory and typically includes split samples, duplicate samples, and various types of blank samples.

Quality improvement. A management program for improving the quality of operations.

Quality indicators. Measurable attributes of the attainment of the necessary quality for a particular environmental decision. Indicators of data quality include precision, bias, completeness, representativeness, reproducibility, comparability, sensitivity, and statistical confidence.

Quality management. The aspect of the overall management system of the organization that determines and implements the quality policy. Quality management includes strategic planning, allocation of resources, and other systemic activities pertaining to the quality system.

Quality system. A structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products, items, and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC.

Representativeness. A measure of the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process, or an environmental condition.

Reproducibility. The precision, usually expressed as

variance, that measures the variability among the results of measurements of a sample at different laboratories.

Screening Level Data. Data that are generated by less precise methods of analysis, less rigorous sample preparation, and less stringent QA/QC procedures. The data generated provide analyte identification and quantification, although the quantification may be relatively imprecise.

Service Agent. A non-regulated entity within the federal government that provides project-specific environmental clean-up or compliance services support to another federal agency. The USACE is a service agent to a number of regulated federal agencies.

Significant deficiency. Any state, status, incident, or situation of an environmental process or condition, or environmental technology in which the work being performed will be adversely affected sufficiently to require corrective action to satisfy quality objectives or specifications and safety requirements.

Split sample. A sample which has been collected, homogenized, and divided into two or more portions for analysis by multiple laboratories. Applicable for all test parameters except those

involving volatile analytes where homogenization might affect the concentration of volatile substances (see also duplicate sample).

Standard operating procedure. A written document that details the process for an operation, analysis, or action, with thoroughly prescribed techniques and steps, and that is officially approved as the method for performing certain routine or repetitive tasks.

Surveillance. Continual or frequent monitoring and verification of the status of an entity and the analysis of records to ensure that the specified requirements are being fulfilled.

Technical Liaison Manager: The central point of contact (POC) at the HTRW CX assigned to each individual MSC. The TLM provides the following support for each assigned MSC: manages all project-specific technical assistance and technical review assignments including resolution of significant issues; communicates regularly with designated central POC at the MSC to apprise of new technical guidance/policy and identify needed general guidance/policy, training needs, and technical assistance needs.

Technical Manager. The leader of the technical process, responsible for the content and quality of technical products.

Technical review. A documented critical review of work that has been performed within the state of the art. The review is accomplished by one or more qualified reviewers who are

independent of those who performed the work, but are collectively equivalent in technical expertise to those who performed the original work. The review is an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification or validation for applicability, correctness, adequacy, completeness, and assurance that established requirements are satisfied.

Technical systems audit. A thorough, systematic, on-site, qualitative audit of facilities, equipment, personnel, training, procedures, record keeping, data verification/ validation, data management, and reporting aspects of a system.

Traceability. The ability to trace the history, application, or location of an entity by means of recorded identifications. In a data collection sense, it relates calculations and data generated

throughout the project back to the requirements for quality for the project.

ENCLOSURE 5

ACRONYMS USED IN HTRW & CDQM PROJECTS

A2LA	American Association for Laboratory Accreditation
ANSI	American National Standards Institute
ASQC	American Society for Quality Control
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CDQAR	Chemical Data Quality Assessment Report
CDQM	Chemical Data Quality Management
CEGS	Corps of Engineers Guide Specification
CEMP-RT	Corps of Engineers, Military Programs Directorate, Environmental Restoration Division, Environmental and Chemical Engineering Branch
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CMD	Corrective Measures Design
CMS	Corrective Measures Study
COC	Chain of Custody

CQAR	Chemical Quality Assurance Report
CX	Center of Expertise
DERP	Defense Environmental Restoration Program
DQO	Data Quality Objectives
EB	Equipment Blank
EE/CA	Engineering Evaluation/Cost Analysis
EM	Engineering Manual
ER	Engineering Regulation
FOA	Field Operating Activity
FS	Feasibility Study
FSP	Field Sampling Plan
FUDS	Formerly Used Defense Sites
GRO	Gasoline Range Organics
HQ	Headquarters

HTRW	Hazardous, Toxic, and Radioactive Waste
ID	Identification
IFB	Invitation for Bid
IRP	Installation Restoration Program
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
LQMM	Laboratory Quality Management Manual
LUFT	Leaking Underground Fuel Tank
MDL	Method Detection Limit
MFR	Memorandum for Record
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSC	Major Subordinate Command
O&M	Operation and Maintenance
PA	Preliminary Assessment
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
PE	Performance Evaluation

POC	Point of Contact
PM	Project Manager
PRP	Principle Responsible Party
QA	Quality Assurance
QAP	Quality Assurance Plan
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RFP	Request for Proposal
RI	Remedial Investigation
RPD	Relative Percent Difference

SAP	Sampling and Analysis Plan
SI	Site Inspection
SDL	Sample Detection Limit
SOP	Standard Operating Procedure
SRL	Sample Reporting Limit
TERC	Total Environmental Restoration Contract
TIC	Tentatively Identified Compound
TLM	Technical Liaison Manager
TM	Technical Manager
TPH	Total Petroleum Hydrocarbon
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

APPENDIX E

REAL ESTATE SUBPLAN

1. Purpose: This appendix provides the general policies and procedures for the execution of quality assurance activities in the Real Estate Division, Engineering and Technical Services Directorate (DETS), South Pacific Division (CESPD), and of quality control activities in the Real Estate Divisions of the Districts within the South Pacific Division. This subplan supplements the main plan.

2. Applicability:

a. This appendix applies to all activities of the Real Estate Division, DETS, and CESPD Districts having real estate responsibilities.

b. The quality management process applies to all real estate services and products, including those real estate subproducts which are integral parts of decision and implementation documents developed as part of the civil planning and engineering programs, including the following:

(1) Real Estate Design Memoranda and Real Estate Planning Reports

(2) Appraisal reports

(3) LERRDs crediting determinations

(4) Last Resort Housing determinations

(5) Acquisition and disposal instruments

(6) Inlease and outgrant instruments

(7) Utilization and Compliance Inspection reports

(8) Condemnation assemblies

(9) Attorney's opinions of compensability

(10) Physical takings analysis

(11) Real Estate Appendices to planning and engineering documents

(12) Executive Order Surveys

c. Real Estate provides significant input to documents managed by other functional organizations. The technical review processes for these documents are described in the other appendices to this division office memorandum.

3. References:

a. CECG/AASA(CE) Joint Memorandum, dated 31 March 1995, Subject: Technical Review Process

b. CECW-A Policy Memorandum No. 2, dated 6 April 1995, Subject: Civil Works Decision Document Review -- Policy Compliance

c. ER 405-1-12, Real Estate Handbook

d. HQ USACE Real Estate Policy Guidance Letters

4. Definitions:

a. Design Checks and Other Internal Review Processes: Detailed review and checking which must be carried out as routine management practices in Real Estate divisions. Such review includes checking to assure basic assumptions are valid, decisions are properly documented, and calculations are error free. These checks are performed by staff responsible for the work and shall be performed prior to conducting independent technical reviews.

b. Independent Technical Review: Independent technical review by a qualified realty specialist, appraiser, or attorney. Such reviews are required reports, memoranda, and dother documents that are an integral parts of Civil Works project documents.

c. Real Estate Manager: The district real estate individual assigned responsibility for guiding the development of the real estate product and coordinating with the district's other technical organizations.

5. District Quality Control Responsibilities:

a. Objective: District Real Estate Divisions shall be responsible for developing and following quality control management practices and business procedures to insure the quality of real estate products and services. These objectives shall be met by development and execution of District Real Estate Quality Management and Quality Control Plans.

b. Quality Management Plan (QMP): District Real Estate Divisions shall establish, and update annually, a Real Estate QMP or the real estate portion of the District's QMP which complies with the policies and principles presented in this memorandum and in applicable USACE regulations. District QMP's will establish the roles, responsibilities and processes of district Real Estate divisions for each major real estate function and activity. The QMP shall be reviewed and approved by CESPD-ET.

c. Quality Control Plan (QCP): District Real Estate Divisions shall prepare a Quality Control Plan (QCP) for each of the real estate products listed in paragraph 2b of this appendix. These QCP's shall be updated as warranted. QCP's shall be developed immediately for real estate products currently under development. Single QCP's shall also be developed which encompass all real estate aspects of each major real estate function and activity.

d. Quality Control Activities:

(1) Responsibilities: The District Chief of Real Estate shall have overall responsibility for the technical quality of real estate products and services within Real Estate Division. Other subordinate managers, leaders, and individuals within Real Estate Divisions also have significant roles and responsibilities in achieving quality products and services. The roles and responsibilities of these individuals shall be described in the district's Real Estate Quality Management Plan and shall include the responsibilities outlined in this appendix.

(2) Independent Technical Review: Independent technical review is applicable to only those reports, memoranda, and other documents prepared by real estate that are an integral part of a Civil or Military Works decision or implementation document. Key to the successful execution of the quality control process for the products developed by Real Estate Division and its contractors is the independent technical review of a product. This review shall be accomplished by real estate individuals having expertise in disciplines involved in the type of product being developed and reviewed, and who were not involved in the product development.

(3) Qualifications of Technical Reviewers: District real estate personnel who perform technical reviews must possess the knowledge, skills, and abilities to be able to identify shortcomings and deficiencies in real estate products and services, and to determine the appropriate corrective actions. Supervisory personnel may perform technical reviews, but are not authorized to perform technical review of the work of their subordinates. A copy of the technical capability profile, with a statement that the individual performing the technical review has been approved to do so, will be part of the district's QC plans. Developmental plans and training plans of technical reviewers will be reviewed during annual Command Assistance Visits and other staff visits.

(4) Dispute Resolution: The District Chief of Real Estate shall facilitate resolution of disagreements between technical reviewers and subordinate supervisors within the Real Estate Division. If this interaction does not resolve the issue, the final decision will be made by the District Chief of Real Estate. The District Chief of Real Estate may consult with the CESPD Chief of Real Estate, who may serve as an unbiased sounding board; or major real estate issues may be forwarded to CESPD-ET-R for resolution or clarification.

(5) Products Developed by Contractors: Some real estate products may be developed by other than in-house staff, noted herein as contractors. For real estate products developed by contractors, the quality control activities noted in this subplan, including development of a quality control plan, shall be the responsibility of the contractor.

Quality assurance activities, including development of a quality assurance plan for a contractor's product, shall be responsibility of the District Real Estate Division. The Chief of Real Estate, CESPD will exercise oversight of the District's quality assurance activities and the contractor's quality control activities.

(6) Final Documentation and QC Certification: Real estate quality control processes must be fully documented. Significant comments, issues, and decisions must be recorded to ensure a clear audit trail. Documentation of real estate technical review activity and other quality control processes prescribed in the district's Quality Control Plan for specific Civil or Military Works studies or products shall be included with studies or products submitted to CESPD.

(7) Updating of Quality Control Plans: Real Estate quality control plans shall be updated whenever significant changes to any element of a plan occurs.

(8) Use of Checklists: Checklists may be used to guide the real estate technical review and ensure that critical items are not overlooked. Checklists may also be used to simplify the documentation of the review. The use of checklists in the documentation would not, however, eliminate the requirement to document specific comments or decisions.

6. CESPD Quality Assurance Responsibilities.

a. Responsibilities: The Chief Real Estate Division at CESPD shall be responsible for reviewing and approving districts' Real Estate Quality Management Plans,product specific quality control plans, and quality assurance plans for contracted real estate work; for the conduct of quality assurance activities to ensure district compliance with this plan and for recommending changes in district real estate divisions' quality management and quality control processes, as needed, to assure that:

(1) Mechanisms and procedures are in place to enable district real estate divisions and their contractors to produce quality real estate products.

(2) District real estate divisions and their contractors develop quality control plans that are at an appropriate level of detail, are consistent with guidance provided, and provide for documentation of quality control actions, including reviews, comments,

and resolution of issues.

b. Quality Assurance Activities: At CESPD, the Chief, Real Estate Division is responsible for the following quality assurance activities:

(1) Providing technical guidance concerning the district's real estate programs and activities.

(2) Developing procedures and guidelines for accomplishing interdisciplinary real estate activities.

(3) Assuring quality of district technical review programs for real estate studies, reports and activities.

(4) Approving the district's QMPs and QCPs for real estate services and products, and certifying the adequacy of real estate components of other district QCPs.

(5) Providing technical and real estate support to the districts, as requested, and providing assistance to districts in resolving major technical issues.

(6) Assuring existing policies are implemented and adhered to in developing district real estate products and conducting real estate procedures. Facilitating resolution of policy issues with HQUSACE and others.

(7) Participating in issue resolution conferences.

(8) Forwarding district real estate documents to HQUSACE for policy review and processing, and providing oversight of the Washington-level review.

(9) Assuring the adequacy of real estate input into environmental impact statements and other documents which demonstrate MSC compliance with environmental statues.

(10) Monitoring customer satisfaction with district real estate products and services.

(11) Leading the real estate portion of the command assistance program.

7. Quality Assurance Process: In addition to the oversight of the real estate technical review process as indicated above, quality assurance by the division will include the following:

a. Informal Consultation: The cornerstone of CESPD-ET-R's role in quality assurance is to provide informal consultation regarding technical and policy issues. Such consultations will serve to ensure that district real estate activities are in compliance with approved quality control plans and to resolve quickly technical and policy issues.

b. In-Progress Conferences: Real estate participation in these conferences will be a significant element of the division's quality assurance program. This will serve to ensure that appropriate coordination is occurring between district real estate divisions and other technical divisions, that the district's real estate efforts are timely, appropriate, and in compliance with the real estate quality control plan.

c. Review of Sample Products: CESPD-ET-R will conduct oversight reviews of selected real estate products produced by the district real estate divisions. These reviews are for the purpose of identifying systemic problems, trends and possible improvements to the process, and assure compliance with current policy.

d. Issue Resolution Conferences: CESPD-ET-R will participate in issue resolution conferences when district real estate divisions request technical assistance or policy guidance, to address issues raised as a result of real estate quality assurance activities, and at mandatory issue resolution conferences.

e. Technical Workshops: Training, technology transfer, and promotion of innovation often do not get the attention that is required because of the press of ongoing work. These activities can be addressed in technical workshops which can be arranged on a recurring basis by the Division Real Estate Chief.

f. Monitoring/Fostering Technical Competency: CESPD-ET-R quality assurance role includes evaluating the technical competency of district real estate division's staff charged with technical review responsibilities. Should real estate technical review support be required from another district, CESPD-ET-R will coordinate efforts to obtain such support.

g. Command Assistance Visits: During command assistance visits, reviews will be made to ensure that district real estate divisions comply with the provisions of this subplan and of district real estate quality control plans.

APPENDIX F

CONSTRUCTION - OPERATIONS SUBPLAN

1. Purpose: This appendix provides the general policies and procedures for the execution of quality management activities in the Construction-Operations Division, Engineering and Technical Services Directorate (DETS), South Pacific Division and of the Construction-Operations Divisions of the Districts within the South Pacific Division. Guidance provided includes:

Main Body of Appendix F	Quality Management of Construction-Operations Activities/Products
Enclosure 1	QM Guidance on Construction
Enclosure 2	QM Guidance on Regulatory Functions
Enclosure 3	QM Guidance on Operations and Readiness Function

2. Applicability: This plan applies to construction-operations activities within CESPD and its districts, including those associated with civil works, OMA, MILCON, HTRW, WFO and SFO.

ENCLOSURE 1

QUALITY MANAGEMENT GUIDANCE ON CONSTRUCTION

1. Purpose: This plan provides South Pacific Division's annual construction quality assurance organizational operating plan pursuant to ER 1180-1-6 (Construction Quality Management).

2. Applicability: This plan applies to construction activities within CESPD and its districts. Construction programs include civil works, OMA, MILCON, HTRW, WFO and SFO.

3. Organization:

a. Within CESPD, construction quality assurance is the responsibility of CESPD-ET-C (Construction-Operations Division). Construction-Operations Division is currently staffed by 3 construction managers and 1 senior construction manager. Program responsibilities are divided among the 3 construction mangers as follows: 1 Military Construction Manager, 1 Civil Works Construction Manager, and 1 HTRW/SFO/WFO Construction Manager.

b. Staffing needs: no additional staffing needs are presently projected; however, pending CE reorganization plans may require an updated analysis within FY 97.

4. Responsibilities:

a. CESPD-ET-C shall review and recommend approval of each district's annual quality assurance plan (required per ER 1180-1-6) prior to its being forwarded to HQUSACE.

b. CESPD-ET-C shall make periodic visits to district and field offices to verify that QA plans are in place and are effective.

c. CESPD-ET-C shall manage Division S&A targets in coordination with District

Construction Divisions.

d. CESPD-ET-C has primary responsibility within SPD to manage annual HQUSACE Design/Construction Evaluation (DCE) visits to each district.

e. CESPD-ET-C shall participate in annual Command Assistance Visits to each district and will evaluate district QA plans as part of that visit.

f. CESPD-ET-C shall participate in the Division Lab Steering Committee.

5. Training:

a. Planning: training plans (including both organizational unit and individual development plans) within CESPD-ET-C will evaluate both technical and management training needs to assure maintenance of technical expertise and construction management expertise of construction managers to facilitate their quality assurance roles.

b. Facilitation: CESPD-ET-C personnel will continue to facilitate QA training within SPD. Emphasis during this planning period will be on continuation of HTRW Manifest Training facilitation and on facilitation of testing training conducted by the SPD Laboratory.

c. Districts shall be required to maintain training matrices that display which personnel have what QA expertise within each field office.

6. Pre-award QA:

a. CESPD-ET-C shall participate in all Advance Acquisition Planning Conferences.

b. Districts shall have primary responsibility for pre-award construction QA activities including BCO reviews, Plan-In-Hand reviews, input to special contract provisions, and design review conferences. However, CESPD QA shall on occasion include participation in any of the foregoing activities on a "spot check" basis.

c. CESPD-ET-C shall participate in project working groups as required.

7. Post-award QA:

a. Districts shall have primary responsibility for post-award QA activities including QA reporting, participation in the 3 phase inspection system, ad hoc problem solving, deficiency monitoring, QA testing, construction safety, and schedule maintenance. However, CESPD QA shall on occasion include participation in any of the foregoing activities on a "spot check" basis. CESPD QA personnel shall provide exit briefs to responsible district personnel after any spot checks and shall include in the briefs both deficiencies noted and recommended solutions.

b. CESPD-ET-C shall manage those programs that recognize outstanding achievement in quality assurance, e.g. the Hard Hat of the Year award, the Construction Manager of the Year award, the Military Construction Contractor of the Year award, the Civil Works Construction Contractor of the Year award, and the Dredging Contractor of the Year award.

c. Districts shall have approval authority for construction quality control plans.

8. Supplements:

a. CESPD-ET-C shall assure that each district annually supplements ER 1180-1-6 with its own QA plan. District QA plans shall be due in Division no later than the close of the first month of each fiscal year.

b. CESPD-ET-C shall combine annual district QA plans with the annual CESPD-ET-C QA plan and forward all plans to HQUSACE in accordance with ER 1180-1-6.

ENCLOSURE 2
QUALITY MANAGEMENT GUIDANCE ON
REGULATORY FUNCTIONS

1. Purpose: This enclosure provides the general policies and procedures for the execution of quality assurance activities in the Regulatory Program Office, Construction-Operations Division, Directorate of Engineering and Technical Services, South Pacific Division (CESPD-ET-CR) and of quality control activities in the Regulatory Branches of the Districts within the South Pacific Division.

2. Applicability: This appendix supplements the guidelines provided in the main body of the Quality Management Plan and applies to all regulatory functions, activities, and products of the Construction-Operations Division, DETS, and CESPD District Regulatory Branches. The policy of CESPD-ET-CR is to provide quality regulatory products and services to the regulated community and all other interested parties, consistent with all applicable laws, regulations, and the public interest. The Districts are responsible for the preparation of regulatory products and the quality control necessary to produce those products. CESPD-ET-CR is responsible for quality assurance of the Regulatory Program, and the products and services provided.

3. References: This appendix implements portions of the guidance presented in the following regulations:

33 CFR Part 325, Appendix C

33 CFR Part 325, Appendix B

33 CFR Parts 320-330

50 CFR Part 402

40 CFR Part 230

4. Definitions: The definition of terms used in this appendix are generally consistent with the definitions provided in the DETS Quality Management Plan. Within the text of this appendix, certain definitions are expanded upon to place them in a context appropriate for the Regulatory

Program.

5. Relationship of the Division and Districts:

a. Division: CESPD-ET-CR is responsible for quality assurance for all regulatory functions accomplished by the Districts. CESPD-ET-CR shall review and approve the regulatory functions portion of each District's Quality Management Plan and Regulatory Branch Quality Control Plans; provide oversight of the quality control process at each District; and provide policy review for regulatory functions and products within CESPD

b. Districts: Each District Regulatory Branch is responsible for controlling the quality of all work they accomplish, including standard and general permits, jurisdictional determinations, enforcement actions, and permit compliance. To assist in the achievement of high quality regulatory products, the Districts shall develop, carry out, and keep up to date their own Quality Management Plans, as described in the DETS Quality Management Plan. The Quality Management Plans shall establish District roles, responsibilities, and processes consistent with this appendix. Districts shall also be responsible for the development and implementation of Quality Control Plans for regulatory functions, activities, and products covered by this appendix.

6. Division Quality Assurance Responsibilities:

a. Regulatory Program Manager: At CESPD-ET-CR, the Regulatory Program Manager is responsible for the quality assurance of the Regulatory Program, including but not limited to the following activities:

(1) Providing technical and policy oversight of the District's Regulatory Programs.

(2) Developing procedures, guidelines, and implementing instructions for accomplishing regulatory mission activities within CESPD.

(3) Reviewing and approving the Districts' Quality Management Plan and Quality Control Plans for Regulatory Branch functions.

(4) Providing technical guidance and regulatory policy support to the Districts, as

requested. Providing assistance to the Districts in resolving major technical and/or policy issues.

(5) Assuring current policies are implemented in District regulatory products. Facilitating resolution of policy issues with HQUSACE and others.

(6) Recommending Division Commander approval of Regulatory Program activities that have been delegated to CESPD.

(7) Evaluating Regulatory Program performance indicators.

(8) Leading the regulatory portion of the Command Assistance Program.

7. District Quality Control Responsibilities: Regulatory Branch Chiefs, Section Chiefs, and Regulatory Project Managers all have significant roles and responsibilities in achieving quality regulatory products. The roles and responsibilities of all participating individuals shall be described in the District's Quality Management Plan and Quality Control Plans, and shall include the responsibilities described below.

a. Regulatory Branch Chiefs: The Branch Chiefs shall have the overall responsibility for the technical quality of regulatory products. It will be the responsibility of the Branch Chief to assure that the Quality Management/Control Plan is implemented and that any discrepancies discovered as a result or training, audits, field evaluations, or Command Assistance Visits are corrected.

b. Section Chiefs: Quality control is the appropriate evaluation of regulatory products, services, and processes to ensure that they meet the requirements of, and are in compliance with all applicable laws, regulations, and recognized technical practices of the disciplines involved. In large part, this shall be accomplished by the Section Chiefs through their independent review process of staff actions and products.

c. Quality Control Plans: Regulatory Branch Quality Control Plans shall be prepared by each District, and should rely heavily on their approved Quality Management Plans, through reference, and highlight only exceptions. Quality Control Plans shall be submitted to CESPD-ET-CR for review and approval, as part of the quality assurance program. A Quality Control Plan

shall, as a minimum, include the following:

(1) A statement of the Quality Control Plan objectives.

(2) A statement of the applicable regulations and guidelines, and regulatory actions and products covered by the plan.

(3) A statement of the quality control criteria, consistent with established regulations and policies, to evaluate the acceptability of regulatory products and actions produced by the Branch, including but not limited to, the proper application of regulations, guidance, and procedures; appropriate protection of the aquatic environment; and efficiency of actions consistent with established timeliness goals.

(4) A statement of actions taken to insure that all Regulatory Branch products and actions meet the above identified criteria, such as training, audits of completed actions, and field evaluations of staff skills in making accurate jurisdictional determinations, including but not limited to, wetland delineations, ordinary high water mark determinations, and any other field skills required to perform their duties as Regulatory Project Managers.

d. Product Review:

(1) Products: The Quality Control Plan shall identify all regulatory products and actions produced by Regulatory Project Managers to be reviewed by Section and Branch Chiefs. These products include, but are not limited to: Standard Permits, General Permits, jurisdictional determinations, including wetland delineations, enforcement actions, and permit compliance. These products shall be essentially complete before review is undertaken, and the Section and Branch Chiefs shall be responsible for the technical and policy accuracy of all products and resultant decisions

8. Quality Assurance Process: In addition to the oversight of technical and policy issues indicated above, quality assurance by CESPD-ET-CR shall include, but not be limited to, the following activitie:

a. Informal Consultation.

b. Review of Sample Regulatory Products.

c. Issue Resolution.

d. Technical Workshops.

e. Monitoring Technical Competency.

ENCLOSURE 3

QUALITY MANAGEMENT GUIDANCE ON OPERATIONS AND READINESS FUNCTION

1. Purpose: This appendix provides the general policies and procedures for the execution of quality assurance activities in the Construction/Operations Division, Operations and Readiness Branch, Engineering and Technical Services Directorate (DETS), South Pacific Division, and of quality control activities for the Operations and Readiness functional elements in the CESPD districts..

2. Applicability:

a. This appendix supplements the guidelines provided in the main body of the Quality Management Plan and applies to all activities of the Construction/Operations Division, DETS and CESPD Districts having responsibility for Operations and Readiness activities.

b. The quality management process applies to all operations and readiness services and products, including those subproducts which are integral parts of decision and implementation documents developed as part of the Planning, Engineering and Operations and Readiness programs including the following:

(1) Planning Reports (Reconnaissance, Feasibility, etc.)

(2) Engineering Reports (Design Memorandum's, etc.)

(3) Operations & Readiness Reports

c. Operations and Readiness Reports include Reservoir Regulation Manuals/Plans, Periodic Inspection Reports, Dam Safety Emergency Action Plans, Water Quality Management

Plans, Operations and Maintenance Manuals, Master Plans and Operational Management Plans with their associated Updates, Supplements and Amendments. The technical review processes for all documents are described in the other appendices to this Division office memorandum.

d. Exception. Due to its special requirements, Natural Disaster Procedures are classified as an unique function of the Corps as described in the Division Organizational Guidelines. Quality assurance and quality control of these products shall be performed at CESPD as prescribed in the existing engineering regulations and guidance and following the general quality management principles set forth in this quality management plan. (See also paragraph 6.j of the Engineering Subplan for additional guidance on quality control of flood recovery efforts.) ER 500-1-1 prescribes the policies for the Disaster Preparedness and Response Program with ER 50-1-26 providing a comprehensive evaluation process for this program. Checklists have been developed as part of both ER 500-1-1 and ER 500-1-26 to validate readiness oriented activities and to provide MSC's with a consistent means of evaluating District Response Plans.

3. References:

a. ER 500-1-1, Natural Disaster Procedures

b. ER 500-1-26, Evaluation and Corrective Action

c. ER 1110-1-12, Quality Management

d. EC 1165-2-203 Implementation of Technical Policy Compliance Review.

e. CECG/AASA(CE) Joint Memorandum, dated 31 March 1995, Subject: Technical Review Process

f. CECW-A Policy Memorandum No. 2, dated 6 April 1995, Subject: Civil Works Decision Document Review -- Policy Compliance

4. Definitions: See main Quality Management Plan.

5. District Quality Control Responsibilities:

a. Objective: District Operations and Readiness activities shall be responsible for developing and following quality control management practices and business procedures to insure the quality of Operations and Readiness products and services. These objectives shall be met by development and execution of District Operations and Readiness Quality Management and Quality Control Plans.

b. Quality Management Plan (QMP): District Operations and Readiness activities shall establish, and update annually, a Operations and Readiness QMP or the Operations and Readiness portion of the District's QMP which complies with the policies and principles presented in this memorandum and in applicable USACE regulations. District QMP's will establish the roles, responsibilities and processes of District Operations and Readiness activities for each major Operations and Readiness function and activity. The QMP shall be reviewed and approved by CESPD-ET.

c. Quality Control Activities:

(1) Responsibilities: The District Chief of Construction/Operations shall have overall responsibility for the technical quality of Operations and Readiness products and services. Other subordinate managers, leaders, and individuals within Operations and Readiness Branch also have significant roles and responsibilities in achieving quality products and services. The roles and responsibilities of these individuals shall be described in the District's Operations and Readiness Quality Management Plan.

(2) Independent Technical Review: Independent technical review is applicable to only those reports, memoranda, and other documents prepared by Operations and Readiness that are an integral part of a Civil Works decision or implementation document. Key to the successful execution of the quality control process for the products developed by Operations and Readiness Branch and its contractors is the independent technical review of a product. This review shall be accomplished by individuals having expertise in disciplines involved in the type of product being developed and reviewed, and who were not involved in the product development.

(3) Products Developed by Contractors: Some Operations and Readiness

products may be developed by other than in-house staff, noted herein as contractors. For Operations and Readiness products developed by contractors, the quality control activities shall be the responsibility of the contractor. Quality assurance activities, including development of a quality assurance plan for a contractor's product, shall be responsibility of the District Operations and Readiness activities. The Chief of Construction/Operations, CESPD will exercise oversight of the District's quality assurance activities and the contractor's quality control activities.

6. CESPD Quality Assurance Responsibilities.

a. Responsibilities: The Chief of Construction/Operations at CESPD shall be responsible for reviewing and approving Districts' Operations and Readiness Quality Management Plans, product specific quality control plans, and quality assurance plans for contracted Operations and Readiness work; for the conduct of quality assurance activities to ensure District compliance with this plan and for recommending changes in District Operations and Readiness activities quality management and quality control processes, as needed, to assure that:

b. Quality Assurance Activities: At CESPD, the Chief, Construction/Operations is responsible for the following quality assurance activities:

(1) Providing technical guidance concerning the Districts' Operations and Readiness programs and activities. This includes conducting site inspections of project O&M activities and to assess effectiveness of support given to Water Resources project sites and visitors centers.

(2) Developing procedures and guidelines for accomplishing interdisciplinary Operations and Readiness activities. Also administer the Navigation, Recreation, Natural Resources and Flood Control O&M Programs.

(3) Assuring quality of District technical review programs for Operations and Readiness studies, reports and activities. Includes all recreation and natural resources studies, Master Plans and Operational Management Plans and ERGO reports. Selected "spot checks" will be accomplished to assess the District Quality Control Program.

(4) Approving the District's QMP's and QCP's for Operations and Readiness services and products.

(5) Assuring existing policies are implemented and adhered to in developing district Operations and Readiness products and conducting Operations and Readiness procedures. Facilitating resolution of policy issues with HQUSACE and others.

(6) Participating in issue resolution conferences.

(7) Forwarding district Operations and Readiness documents to HQUSACE for policy review and processing, and providing oversight of the Washington-level review.

(8) Assuring the adequacy of Operations and Readiness input into environmental impact statements and other documents which demonstrate MSC compliance with environmental statues.

(9) Monitoring customer satisfaction with District Operations and Readiness products and services.

(10) Leading the Operations and Readiness portion of the command assistance program.

7. Quality Assurance Process: In addition to the oversight of the Operations and Readiness technical review process as indicated above, quality assurance by the Branch will include the following:

a. Informal Consultation: The cornerstone of CESPD-ET-CO's role in quality assurance is to provide informal consultation regarding technical and policy issues. Such consultations will serve to ensure that District Operations and Readiness activities are in compliance with approved quality control plans and to quickly resolve technical and policy issues.

b. Review of Sample Products: CESPD-ET-CO will conduct oversight reviews of selected Operations and Readiness products produced by the District Operations and Readiness activities. These reviews are for the purpose of identifying systemic problems, trends and possible improvements to the process, and assure compliance with current policy.

c. Issue Resolution Conferences: CESPD-ET-CO will participate in issue resolution conferences when District Operations and Readiness activities request technical assistance or policy guidance to address issues raised as a result of Operations and Readiness quality assurance activities.

d. Technical Workshops: To promote technology transfer and exchange of ideas on innovative technologies, CESPD-ET-CO will host periodic technical workshops.

e. Command Assistance Visits: During command assistance visits, reviews will be made to ensure that District Operations and Readiness activities comply with the provisions of this subplan and of District Operations and Readiness quality management plans.

f. Performance Indicators and Measures : MSC's and Headquarters, have been developing a program to measure performance through specific indicators. The Performance Measurement Program will be added to the overall QA/QC process as it is finalized.

APPENDIX G

MODEL OF
DISTRICT ENGINEER'S QUALITY CONTROL CERTIFICATION

COMPLETION OF QUALITY CONTROL ACTIVITIES

The District has completed the *(state level of study or product development)* of *(Project Name and Location)* . Certification is hereby given that all quality control activities defined in the Quality Control Plan appropriate to the level of risk and complexity inherent in the product have been completed. Documentation of the quality control process is enclosed.

GENERAL FINDINGS

Compliance with clearly established policy principles and procedures, utilizing clearly justified and valid assumptions, has been verified. This includes assumptions; methods, procedures and materials used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and the reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.

QUALITY CONTROL CERTIFICATION

As noted above, all issues and concerns resulting from technical review of the product have been resolved. The project may proceed to the *(indicate next phase of product development)* .

(Signature) *(Date)*

Chief, Responsible Functional Element

(Signature) *(Date)*

District Commander

CERTIFICATION OF LEGAL REVIEW*

The report for *indicate name of study/project*, including all associated documents required by the National Environmental Policy Act, has been fully reviewed bythe Office of Counsel, *indicate name of district* and is approved as legally sufficient.

(Signature) *(Date)*

District Counsel

* This portion of the certification may be required for civil works related products per EC 1165-2-203.